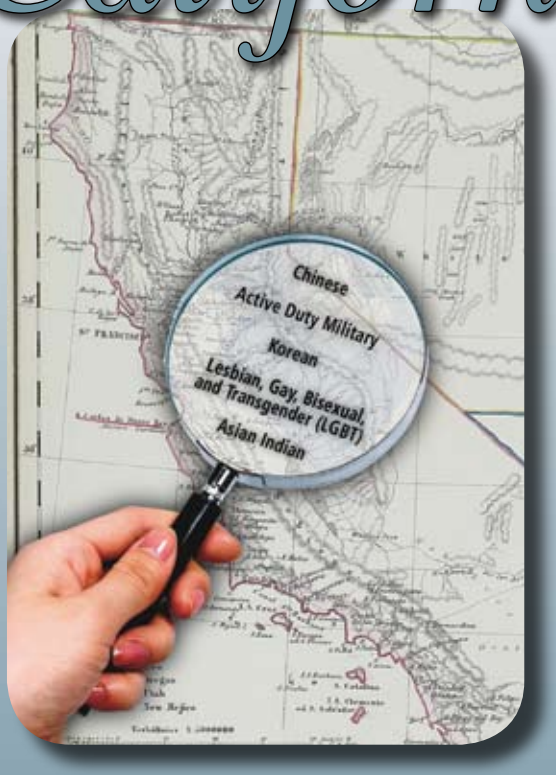
California



Asian Indian

Tobacco Use Survey — 2004

California Department of Health Services
Tobacco Control Section

Prepared by
University of California, Los Angeles

Arnold Schwarzenegger, Governor
State of California

Kimberly Belshé, Secretary
California Health and Human Services Agency

Sandra Shewry, Director
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Executive Summary

Tobacco use prevalence

Three thousand, two hundred and twenty-eight adult Asian Indians resident in California participated in a telephone interview about their tobacco use history and about demographic, cultural, and immigration-related information. Results showed that Asian Indian residents in California have enviably low rates of current tobacco use, whether assessed as conventional tobacco use, such as cigarette smoking, or assessed as Indian-specific tobacco use, such as bidis smoking. For instance, only 1.9 percent of Asian-Indian women and only 8.7 percent of Asian-Indian men report current cigarette smoking, for an overall prevalence of current cigarette smoking of only 5.5 percent. These low rates of current tobacco use do not mean that they have never been exposed to tobacco use. In fact, the majority of both Asian-Indian men and Asian-Indian women report ever use of tobacco, but more often as Indian-specific tobacco use. In most comparisons, Asian-Indian women report lower rates of ever use and current use of tobacco than their male counterparts, consistent with their lower degree of acculturation to United States (U.S.) social norms.

Surprising contrasts between prevalence of Asian Indian tobacco use in India and California

In stark contrast to bidi use in India, bidi use among California Asian-Indian women is nonexistent and surprisingly uncommon in California Asian-Indian men. On the contrary, ever use of cigars is relatively high among Asian Indians in California but is rare in India. The most parsimonious explanation for these surprising differences in use of specific tobacco products is the relative availability of these products in the U.S. and India, but associations of bidis with lower social class status and cigars with entrepreneurship suggest that social class and economic aspirations may also help to explain the observed differences in bidis use and cigar smoking.

Asian-Indian smokers have higher rates of long-term abstinence

While relapse rates for Asian-Indian smokers trying to quit are high, consistent with relapse rates reported for Americans in general, Asian-Indian ever smokers appear to have higher rates of long-term abstinence. Those who continue to smoke do so reluctantly; most state an interest in quitting their tobacco use habit. Once Asian Indians have become regular tobacco users, their tobacco use habit seems no longer to be significantly affected by such measures of cultural identification as language preference, duration in the U.S., cultural self-identification or religiosity.

Acculturation is related to tobacco use

For composite measures of conventional and Asian Indian-specific tobacco products, it is quite clear that various measures of acculturation are related to the adoption of tobacco use. The relationships are generally but not completely linear, with increasing use of tobacco as "westernization" progresses. Degree of religiosity is protective against tobacco use but degree of religiosity tends to get compromised by the transition in acculturation from feeling "mostly like an Indian" to feeling "mostly like an American." When examining key indicators of adherence to cultural norms, such as language, religion, and cultural self-identification, California Asian-Indian men are consistently more acculturated to American practices than Asian-Indian women, but only by a few percentage points. Duration of time spent in the U.S. was generally associated with increasing acculturation to U.S. social norms and cultural practices, which partly explained observed sex differences, because Asian-Indian women on average had spent less time in the U.S. than Asian Indian men. Some facile indicators of acculturation, such as whether a Californian of Asian-Indian ancestry was born in the U.S. or not, are shown to be somewhat misleading inasmuch as the Indian diaspora resulted in 12% of the respondents reporting birth in countries of the British Commonwealth, including the United Kingdom (U.K.), Canada, and other venues steeped in western culture. Asking only about sojourn time in the U.S. can therefore obscure the contribution that other countries may have made to the westernization of Asian Indian immigrants coming to the U.S.

This study provided a detailed look at how cultural norms influence tobacco use

Researchers have long appreciated the influence that the social norms and cultural practices characterizing distinct ethnic groups can have on tobacco use. Ethnicity is a common measure included in tobacco use surveillance. Nonetheless, ethnicity has often been regarded as a covariate, not as a predictor. That is, ethnicity has been included in tobacco use surveillance efforts in order to remove extraneous, statistical variation from the more recognized predictors of tobacco use, such as age, sex, educational attainment, and household income. This current surveillance effort, explicitly designed to compare first generation with second-plus generation immigrants from a single culture, has afforded a more detailed glimpse into the operation of social norms and cultural practices as potent predictors of tobacco use behaviors than has been heretofore available.

Public health lessons from examining tobacco use in this special population

The most immediate public health lesson from these results is that traditional Asian-Indian culture can protect aginst tobacco use if its norms and values are invoked before the (young) California Asian-Indian has become addicted to tobacco. Once addicted, the Asian-Indian tobacco user in California is likely to benefit as much from "western" cessation strategies as from any culturally-specific tobacco control strategy. The larger lesson for public health intervenors emanating from this study, however, is that social norms and cultural practices dictated by religion, social class, and ethnic identification are important influences on tobacco use. Recent immigrant groups such as Asian Indians provide researchers with a living laboratory, enabling researchers to get a snapshot of the variation in tobacco use attitudes and practices that accompanies the transition from the fresh-off-the-boat immigrant steeped in Asian-Indian culture to the second-plus generation American Asian Indian fully identifying herself as an American. With regards to tobacco control, Asian Indians in California appear to be a model for other ethnic and cultural groups to emulate. Their experience provides evidence that the Healthy People 2010 goal of reducing regular adult tobacco use to less than 12% can be achieved.

Chapter 1 Background for Special Population Tobacco Surveillance Focus on Californians of Asian Indian Ancestry

- Key findings
- Prologue
- Brief political and socio-economic history, including the Indian Diaspora
- Brief review of Asian Indian cultural history, especially the contrast between Hindus and Muslims
- Review of literature on tobacco use among Asian Indians
- Socio-demographic distribution of Asian Indians in California, by age, by gender
- Known tobacco use epidemiology of South Asians, with special focus on Asian Indians
- Conclusion

Key Findings

- Tobacco use in India dates back to the 1600s but the cultural and religious influences on tobacco use have roots that date back to the origins of India's modern day culture. A review of India's history is needed to understand present day cultural and religious influences on tobacco use among Californians of Asian Indian cultural heritage.
- Religious prohibitions against use of intoxicants, emanating from Islam and Buddhism, have generally been interpreted as discouraging tobacco use.
- Economic pressures have historically succeeded in spreading tobacco use despite these cultural barriers.
- Cultural influences nonetheless have shaped how tobacco is commonly used, so that several distinctly Asian Indian ways of using tobacco are evident in today's India

Prologue

The U.S. 2000 Census identified 314,819 Californians of Asian Indian ancestry (U.S. Census, 2002). Little has been published on tobacco use among Asian Indians living in California or among Asian Indians living in the U.S. This lack of information could mean missed opportunities to reduce morbidity and mortality in this growing population, by providing culturally specific tobacco use education and prevention efforts targeted to Californians of Asian Indian ancestry. Recognizing this, the California Department of Health and Human Services released a request for proposals in 2002 to conduct telephone surveillance of Asian Indians living in California. The purpose of the surveillance was to estimate tobacco use prevalence and its correlates among Asian Indians living in California, with special attention to differences by gender and acculturation.

Epidemiological evidence from Canada and the U.K. suggest that Asian Indians suffer from acute myocardial infarction at rates substantially higher than average (e.g., Pais et al., 1996; Yusuf et al., 2001). These higher rates have been attributed, in part, to a combination of tobacco use and increased susceptibility by South Asians to the insulin resistance syndrome, compared to other ethnic groups. Moreover, occasional surveys of tobacco use by Asian Indians living in India, the U.K., the U.S., and Canada (reviewed below), show significant tobacco use at least by Asian Indian men.

In short, Californians of Asian Indian ancestry appeared, in 2002, to be at significant risk of suffering from tobacco-related diseases. It appeared that statewide surveillance of tobacco use among California adults of Asian Indian ancestry was needed to gauge the extent of the problem, the nature and quantity of tobacco use, the extent of exposure to secondhand smoke (SHS), the rates of cessation, and the attitudes and beliefs about tobacco use. Statewide surveillance was also needed to evaluate the extent of exposure to public health efforts to reduce tobacco use and reduce exposure to SHS. Evidence-based tobacco control strategies to improve the health prospects of Californians of Asian Indian ancestry could proceed once these surveillance goals had been achieved.

Brief Political and Socio-economic History of India (Adapted from Geographia.com)

India's history is intimately tied to the invasions from east and west that its location inspired. Its geographic isolation and assimilationist religions allowed it to adapt to and absorb many of the cultural beliefs of the warriors and traders who penetrated its mountain passes. No matter how many Persians, Greeks, Chinese nomads, Arabs, Portuguese, British, and other invaders attempted to impose their foreign mores, local Hindu kingdoms invariably survived culturally intact, maintaining the roots of a culture well established since the time of the first invaders, thought by many scholars to be the Aryans.

Aryans' Vedas: Origins of Indian Culture

The Aryans came out of the north in about 1500 B.C. (before Christ). The Aryans brought with them strong cultural traditions that still remain in force today. They spoke and wrote in a language called Sanskrit, which was later used in the first documentation of the Vedas, ancient poems and hymns (note, "veda" means "knowledge"). Though warriors and conquerors, the Aryans lived alongside the original Indus people, introducing them to the caste system and establishing the basis of the major Indian religions. The Aryans inhabited the northern regions for about 700 years, then moved further south and east when they developed iron tools and weapons. They eventually settled the Ganges Valley and built large kingdoms throughout much of northern India.

Buddhism Arose and Flourished for Hundreds of Years in India

Major new invasions occurred 1,000 years later, first by Persians, followed 150 years later by the Greeks under Alexander the Great. While the Persians and Greeks subdued the Indus Valley and the northwest, Aryan-based kingdoms continued developing in the eastern Indian subcontinent. Siddhartha Gautama founded the religion of Buddhism in the fifth century B.C. Although Buddhism ultimately flowered outside of India, its principles influenced Indian cultural norms. Among its principles are paths four and five of the Holy Eightfold Path: right behavior and right occupation. "Right behavior" included not drinking intoxicants (tobacco was unknown in Gautama's time but many Buddhists interpret "right behavior" to include a ban on tobacco use [e.g., IWBTC, 2002]). "Right occupation" included not vending "poisons" such as psychoactive drugs or liquor.

As the overextended Greek Empire weakened, Persians invaded and ruled much of northern India for a couple of hundred years, followed once again by the Greeks. During this period of several hundred years, Buddhism became the ascendant religion. Buddhism remained a dominant religion until the advent of the Muslim invaders, beginning around 1200 A.D. (after death).

The Muslim Influence Supplanted but did not Eclipse Buddhism

First in intermittent raids and then in a full-fledged invasion, Muslim armies in 1192 laid waste to the Buddhist temples of Bihar, and by 1202 had conquered the most powerful Hindu kingdoms along the Ganges. For two centuries Muslim Turks ruled the far north from the Sultanate of Delhi, while the southern majority of India remained free from the invaders. This stable period ended when the (Muslim) Mongols invaded and ravaged the entire region.

Islamic India fragmented after the Mongols had brutally devastated Delhi, and it was every Muslim strongman for himself. This would change in 1527, however, when the Mughal (Persian for Mongol) monarch Babur came into power. He provided the foundation for the Mughal dynasty, whose six emperors would comprise the most influential of all the Muslim dynasties in India. This dynasty extended the empire as far south as the Krishna River that runs through what are today the southern Indian states of Andhra Pradesh and Karnataka (Kar.). The greatest of the emperors tolerated local religions and married a Hindu princess, establishing a tradition of cultural acceptance that would contribute greatly to the success of the Mughal rule. One of the later

emperors attempted to reverse things when he tried to eradicate indigenous traditions, and his intolerance prompted fierce local resistance. Though he expanded the empire to include nearly the entire subcontinent, he could never totally subdue the Hindus in southern India. Infighting by the sons of this emperor caused the Mughal empire to crumble, just as the Europeans were beginning to flex their own imperialistic muscles.

A consequence of the four hundred years of Muslim rule was that many Asian Indians converted from Buddhism to Islam. Buddhist principles still infuse today's cultural norms even though relatively few Asian Indians have remained Buddhist. Today's India includes only about 7 million Buddhists but over 100 million Muslims, making it the largest concentration of Muslims in the world after Pakistan and Indonesia. The Qur'an (Koran), a book of writings accepted by Muslims as revelations to Muhammad from Allah, includes explicit prohibitions against gambling and the use of intoxicants. There was no explicit prohibition against tobacco use because tobacco use was unknown in the time of Muhammad, but Muslim religious leaders have concluded that smoking and the selling of tobacco products are contrary to Islamic law, as is the consumption of alcoholic beverages.

The Influence of the European Imperialists

Although the Portuguese were the first Europeans to establish colonies on Indian soil, it was the British, in the form of the East India Company, who gradually took over and ruled India for over 300 years. The British eventually dominated the entire subcontinent. Through a combination of outright aggression and deft alliances with local princes, the East India Company gained control of all European trade in India by 1769. Treaties and agreements were signed with native princes, and the Company gradually increased its role in local affairs as part of a highly efficient and organized system called "the Raj." The Raj helped build infrastructure and trained Asian Indians to fight for the Raj, though in theory the training was for India's own defense against outside aggressors.

Early Trade in Tobacco

The British East India Trading and Dutch East Indies companies began selling tobacco to residents of India in the 1600s. This early trade brought tobacco grown in South America to eastern Mediterranean ports, which was then sold to traders from Persia and South Asia. The tobacco was then distributed to reigning Persian, Mughal, and Chinese governments via the famous "Silk Road" route, although some tobacco reached Goa by Portuguese boats. Early tobacco was reserved for the powerful and economic elite. Cultural artifacts from this period reflecting the increasing popularity of tobacco include jewel encrusted paan boxes, ornate hookahs, and other paraphernalia. Although the imported tobacco was intended to be smoked, South Asians preferred to incorporate it into their already-existing cultural habit of chewing betel nut leaf (paan). Tobacco use thereby entered into many social and religious functions during the reign of the Mughals. In Turkey and Persia there evolved concurrently what we know today as the "hookah," an ingenious extension of the European clay pipe, an extension that used water to cool the tobacco smoke before inhalation.

As the British increased their influence over India and as British traders aggressively expanded markets for tobacco from Virginia, tobacco use became ever more popular in India. When the War of Independence in the U.S. interrupted the sale of Virginia tobacco, entrepreneurs established tobacco farms in South America, Africa, and Asia to meet the demand. The subsequent glut of tobacco on the world market reduced prices and thereby increased the accessibility of tobacco products to mass markets.

The Social Correlates of Early Tobacco Use in India

Available portrayals of tobacco use among Asian Indians in the early period suggested that smoking tobacco was the province of the upper classes. When Hindu rajas adopted smoking, its public users were predominantly male. Women indulged in smoking, too, but generally only in private. Women felt no similar constraint, however, in the use of paan-laced tobacco, which they felt free to chew in public.

In 1858, a rumor spread among Asian Indian soldiers that the British were greasing their bullets with the fat of cows and pigs, the former sacred animals to Hindus and the latter unclean animals to Muslims. A year-long rebellion against the British ensued. Although the Indian mutiny was unsuccessful, it prompted the British Government to seize total control of all British interests in India in 1858, finally establishing a seamless imperialism. Claiming to be only interested in trade, the Raj steadily expanded its political influence over India until the princes ruled in name only. This system of governance was accepted by the

Indian populace for five more decades, without much additional resistance but with growing resentment. Infrastructure had been developed, administration established, and an entire structure of governance erected. India had become a profitable venture, and the British were loath to allow the Asian Indian population any power in a system that they viewed as their own accomplishment. The Asian Indians did not appreciate this paternalistic arrogance, and as the 20th century dawned there were increasing movements within Indian communities towards political self-rule.

Hindu-Muslim Tensions have Relegated Political Discussions About Tobacco Control to the Secular Sphere

Even as the desire for independence grew among all Asian Indians, tensions between Hindus and Muslims had also been developing over the years. The Muslims had always been a minority, and the prospect of an exclusively Hindu Government made them wary of independence; they were as inclined to mistrust Hindu rule as they were to resist the Raj. In 1915, Mohandas Karamchand Gandhi came onto the scene, calling for unity between the two groups in an astonishing display of leadership that would eventually lead the country to independence.

Independence came at great cost. When the British left in 1947, they created the separate states of (West) Pakistan and Bangladesh (known at that time as East Pakistan) on the western and northeastern sides of India, respectively. Violence erupted immediately when Muslims stranded in India and Hindus stranded in East and West Pakistan fled in opposite directions. Within a few weeks, half a million people had died in the course of the greatest short-term migration of human beings in the world's history.

India's history since independence has been marked by disunity and intermittent periods of virtual chaos. All but its most recent prime ministers have been Hindu. The current prime minister is Manmohan Singh, who is a Sikh. Religious tensions remain high despite state policy consistently advocating tolerance. Government efforts to control tobacco use have been largely based on public health concerns, not on religious beliefs (e.g., "Tobacco Control in India," 2004). Indian government-sponsored tobacco control efforts have been feeble relative to the magnitude of the projected costs.

Development of Indian-specific Tobacco Products

As tobacco use became more accessible to the masses, India-specific adaptations of its uses proliferated. The result is an extensive range of tobacco products today, varying principally in the substances that are combined with the tobacco product (betel nut, spices, sugar, etc.) but varying also in the vehicle used to absorb the nicotine content of tobacco (e.g., smoking, chewing, snuff, etc.). The principal categories of India-specific tobacco products include:

Bidis—(also spelled "beedies")—thin, usually flavored cigarettes made of shredded tobacco rolled up in tendu leaves. Usually inexpensive compared to western-made cigarettes. Popular with lower class Asian Indians

Paan—(also spelled "pan")—strictly speaking, refers to the betel leaf alone but more generally refers to the generic form of the combination of crushed betel nut mixed with lime paste, housed in an envelope ("quid") made up of the betel leaf. The quid is then chewed gently and sucked.

Gutka—a commercially-prepared combination of ground betel nut, tobacco, lime paste, saffron, other flavorings and sweetened. Used like moist snuff, held in mouth and gently chewed. Often an ingredient in paan. The saliva is generally spit out but is sometimes swallowed.

Paan masala (tobacco, areca nuts, slaked lime, betel leaf + flavoring)—is a type of paan, with or without tobacco, made with chopped betel nuts, slaked with lime and scented with such flavoring agents as menthol, camphor, aniseed, mint, rosewater or other spices, and sweetened with sugar before being placed in the betel leaf. If tobacco is used, it is chopped or powdered tobacco made from either raw, roasted, or sun-dried tobacco. The resulting "quid" is placed in the mouth usually between the gum and cheek. It is sucked and chewed gently. Pan masala is sometimes served in restaurants after the meal or by hosts after a dinner party. Asian Indians believe that it aids in digestion.

Zarda—is an additive to paan, made of tobacco leaves broken up and boiled with lime and spices. The mixture is dried and colored, then mixed with finely chopped areca nuts. It is usually used as an ingredient in betel quid but can be chewed in its own right.

Snuff mixtures—the tobacco is commercially cured, treated, and mixed with such ingredients as clove oil, glycerine, spearmint, menthol, and camphor. The mixture is often sold in tubes resembling toothpaste containers and in fact, is often sold as a dentifrice. Women are the principal users of snuff.

The Indian Diaspora

A 2001 report from the India Ministry of External Affairs ("Indian Diaspora," 2001) states that people of Indian origin began to emigrate overseas in significant number only in the 19th century, driven by the economic needs of European colonialism. In a uniquely diverse pattern that has not been replicated by any other diaspora, except perhaps the Chinese, Asian Indians spread initially to the countries of Africa, Southeast Asia, Fiji, and the Caribbean. This wave was mainly in response to the enormous demand for cheap labor that arose immediately after the British abolished slavery in 1833-34. It was succeeded in the second half of the 20th century by a steady outflow of some of India's best professionals to the developed countries of the West, and of India's skilled and semi-skilled labor in the wake of the oil boom in West Asia and the Persian Gulf in the 1970s. Today the Indian Diaspora numbers over 20 million, reflecting the rich social, ethnic, religious and cultural heritage of their country of origin. Of these, more than 1.7 million can be found in the U.S, and of these about 20% can be found in California. Most U.S. residents of Asian Indian origin immigrated since 1965, when the U.S. Congress changed immigration laws that formerly had discriminated against Asians, but not all of these new Asian Indian U.S. residents came from India. About 70% of Asian Indians now resident in the U.S. were born outside of the U.S., born in such places that are known today as: Fiji, Pakistan, Bangladesh, Tanzania, Uganda, Guyana, Kenya, as well as India.

According to a summary of a recent report from the U.S. Census Bureau, Asian Indian residents in the U.S. have become the most successful "model ethnic minority," with education and income levels far higher than found among native-born whites (Watanabe et al., 2004). The median family income for Asian Indian residents in the U.S. was $70,708, compared to a median family income of $50,046 for all U.S. families. The percent of Asian Indian adults with a bachelor's degree or higher was a phenomenal 63.9%, compared to only 24.4% for all U.S. families. Asian Indians have done well compared to other Asian immigrants to the U.S. in part because most of them learned and used English in India, where English is one of the nation's legally recognized languages, whereas Asian immigrants from other countries had little occasion to use English until they arrived in the U.S. Asian Indians have done well, also, because they were recruited to the U.S. for their specialized skills, especially in medicine, science and technology, where incomes are relatively high. Not all Asian Indian residents in the U.S. are doing so well, of course. There are pockets of immigrant Asian Indians who work as taxi cab operators, factory workers, and newsstand vendors, for instance, whose education and income levels are less impressive.

A summary of the South Asian Diaspora in the U.S. (McMahon, 2004) reports that immigration to the U.S. came in two waves, the first from 1907 to 1924, and the second much larger wave, starting in 1965 and continuing to the present day. The first wave consisted mostly of Sikhs from the Punjab, and Muslims. Most of these early South Asians immigrated to California and through hard work became landowning farmers. Increasingly strict immigration laws reduced immigration and the Immigration Act of 1924 barred all further immigration from India. The estimate of South Asians immigrating to the U.S. before 1964 is around 6,400. The passage of the Immigration and Nationality Reform Act in 1965 marked the beginning of the second wave of immigration and by 1990 nearly one million South Asians had immigrated to the U.S. A large percentage of South Asians in the second wave were professionals. Currently the largest concentrations of immigrants and Americans of South Asian descent are in California, New York, and New Jersey.

Tobacco Use by Asian Indians: A Brief Review of the Epidemiological Literature

A review of the scientific literature on the epidemiology of tobacco use by Asian Indians is necessarily brief, because there is remarkably little epidemiological information in the scientific literature on this topic. Typing in the words, "Asian," "Indian," "Tobacco," and "Prevalence" as search terms in the Medline database elicited 15 citations; replacing "Prevalence" with "Epidemiology" yielded 12 citations. Examination of the entries revealed that in most of these articles, the target study population included both Asians, as a generic ethnic group, and "American Indians," but not "Asian Indians" specifically. In the seven remaining articles, tobacco use was in fact incidental to a larger interest in, for example, the epidemiology of polydrug use, coronary heart disease, or oral health.

Fortunately, a search of the Internet using the Google search engine does avail the researcher access to unpublished results of regional and national surveys, conducted in Canada, the U.K. and the U.S. What we knew about the epidemiology of tobacco use among Asian Indians, prior to the survey described in this report, is largely based on these surveys.

Tobacco Use Epidemiology of South Asians, with Special Focus on Asian Indians

Fortuitously, a high-quality, representative survey of tobacco use in Asian Indians occurred in 2001, the results of which were recently made available on the Internet (Chaudry et al., 2002).

The survey was carried out in three randomly selected districts of Kar., a southern state of India, and Uttar Pradesh (U.P.), a northern state. The objectives of the survey were to build a database on prevalence of tobacco use in the total population of India and in specific population subgroups, for the purposes of facilitating advocacy for tobacco control and for planning tobacco control interventions and evaluation. To cover a population of about 30,000 above 10 years of age, 600 clusters in each of the state were selected by simple random method from the list of villages and urban wards obtained from the Registrar General of India. The proportion of urban and rural population as observed from the census data from the specific district was used for allocation of clusters to urban or rural population. Within a cluster, 17 houses were visited by trained workers, to yield approximately 50 interviewees above 10 years of age. The cooperation rate was impressively high in both states, exceeding 95%.

The overall prevalence of **ever use** of any kind of tobacco products was observed to be 29.6% in Kar. and 34.6% in U.P. The overall prevalence of **current use** of tobacco in the population above 10 years of age was observed to be 28.4% in Kar. (41.0% among males and 14.9% among females) and 34.4% in U.P. (50.0% among males and 9.1% among females). There was little difference between **current use** statistics and **ever use** statistics (difference = 1.2% or less), which suggested to the authors of the report that few Asian Indians who ever started tobacco use later quit the habit. This stands in contrast to U.S. smokers, where about half of all ever smokers have now quit. Only 1.1% of ever tobacco users reported being tobacco quitters (1.1%) in the Kar. sample or tobacco quitters (0.2%) in the U.P. sample. These observations are further reinforced by evidence that most tobacco users reported never considering quitting tobacco use. By contrast, in the U.S. most adult smokers have tried to quit and report high motivation to quit. For the few Asian Indian tobacco users who tried to quit, the success rate of tobacco cessation is small.

Specific to India, most smokers used bidis (91.7% [Kar.], 84.5% [U.P.]) rather than cigarettes (8.3% [Kar.], 15.5% [U.P.]). As mentioned above, bidis may be said to be cheaper than cigarettes and therefore favored by lower class Asian Indians and cost-conscious Asian Indians.

In a pattern that diverges strikingly from that observed in the U.S., smoking gradually increases with age, reaching the peak level in the age-group 65-70 years among males and 70-plus years among females. In the U.S., peak use occurs in young adulthood and declines thereafter. The prevalence rates of tobacco use were higher in rural areas as compared to urban areas in most age-groups, the exception being the teenagers, where prevalence was comparable or higher in urban areas. Formal educational attainment was inversely related to the prevalence of tobacco use in both states, except for cigarette smoking, where the expense of cigarettes made it more the province of the urban rich. Similarly, higher family income levels were associated with lower prevalence of current tobacco use, except for cigarette smoking. The prevalence of current use of

cigarettes was 1.6% (3.1% among males and 0.1% among females) in Kar. and 1.4% (2.3% among males and practically nil among females) in U.P. For the few who could afford cigarettes, use increased with both educational attainment and household income and was more prevalent in urban settings than in rural areas, a pattern just the opposite observed for all other forms of tobacco use. Cigar use was not specifically evaluated, probably because of its rarity in India. Religion did not seem to have any consistent association with prevalence of ever or current use of tobacco in either Kar. or U.P.

Smokeless Tobacco Use is High in Many Parts of India

Another striking contrast with the U.S. was the relatively heavy use of smokeless tobacco, nearly equal in prevalence to the prevalence of smoking. Smokeless tobacco was favored by women and by young men; men over 30 preferred to smoke bidis when they used tobacco. The overall prevalence of smokeless tobacco use was observed to be 13.9% in Kar. (13.4% among males and 14.4% among females) and 17.5% in U.P. (24.3% among males and 6.6% among females). Paan with tobacco was a popular smokeless tobacco modality among Kar. males, less so among Kar. women, but relatively unpopular in U.P. The prevalence rate of use of this tobacco modality was 14.2% (26.9% among males and 0.6% among females) in Kar. and 2.0% (2.3% among males and 1.4% among females) in U.P. Similar relationships to education and income were observed for smokeless tobacco as had been observed for smoking (bidis) and for tobacco use, generally. The prevalence of smokeless tobacco use was higher in rural areas than in urban areas, a pattern also observed for the prevalence of smoking (bidis) and tobacco use in general.

Finally, a comparison with a tobacco use prevalence survey conducted in India in 1993 suggested that these most current rates are higher than the rates previously observed (summarized in Chaudry, 2002). In contrast to the U.S., where tobacco use prevalence rates have been falling or plateauing for decades especially among older adults, tobacco use appears to be on the increase in India, especially among older adults. According to Dr. Prakash C. Gupta, Director, Healis Sekhsaria Institute of Public Health in New Delhi, who co-edited the recent "Tobacco Control in India" report, the "Tobacco problem in India is enormous. Tobacco is used in a wide variety of ways and there are estimated 250 million tobacco users in the country. This leads to a large number of premature deaths (over 800,000), about 550,000 occurring below the age of 70 years."

If recent immigrants from India to the U.S. are influenced by these trends, then the rates of tobacco use among first generation California immigrants from India should be high. On the other hand, India's political commitment to combat tobacco use has been increasing dramatically of late, reflected in its 2004 ratification of the World Health Organization Framework Convention for Tobacco Control and reflected in the November 2004 release of its first-ever federal report on tobacco control modeled after the U.S. Surgeon General's reports on tobacco ("Release of Report," 2004). This follows recent state legislation in states such as Tamil Nadu, Maharashtra, and Andhra Pradesh to ban completely the production and sale of gutka and paan made with tobacco (Chaudry, 2002). If India's newest emigrants to the U.S. are influenced by this recent invigoration of Indian federal commitment to discourage tobacco use, then their tobacco use rates should be low.

South Asian Tobacco Use in the United Kingdom

The largest survey expressly designed to gauge tobacco use among South Asians living in Great Britain was the 1999 Health Survey for England (U.K. Department of Health, 2001). For this survey, South Asians included Pakistanis, Indians, Sri Lankans, Nepalese, and Bangladeshis. South Asian groups are often lumped together because they share common cultural, religious, and linguistic norms. In the U.K., Asian Indians comprise most of the South Asians and one-quarter (26%) of all ethnic minorities residing in the U.K., as compared to Pakistanis (15%) or Bangladeshis (8%). In the U.S., Asian Indians comprise 89% of all South Asians. About half of Asian Indians in the U.K. were born there, which contrasts with only about 30% of Asian Indians in the U.S. who can say that they were born in the U.S. Asian Indian men smoke a little less frequently (23%) than U.K. men in general (27%) but Asian Indian women smoke much less frequently (6%) than their non-Indian counterparts in the U.K. (27%). Other South Asians tend to smoke more than Asian Indians in the U.K. (Bangladeshi men, 44%; Pakistani men, 26%). One odd thing about these statistics is that most of the Pakistani men are Muslim, whose religious beliefs include a proscription against intoxicant use (which has been interpreted by imams as proscribing tobacco) whereas most of the Asian Indian men are Hindus, whose religious beliefs do NOT proscribe intoxicant use. Why should Hindu men smoke less frequently than Muslim men? More research is needed to answer this question. Another odd thing is that Asian Indian women smoke slightly MORE (6%) than Pakistani women (5%) or Bangladeshi women (1%), a pattern exactly opposite to that observed above for South Asian men, who smoke LESS frequently than other South Asian men. Unmeasured differences in acculturation and education may help to explain these divergent findings.

Despite the lower prevalence of smoking among Asian Indian males, the success rate of Asian Indian male smokers giving up their habit for good is substantially lower (35%) than that observed for U.K. male smokers more generally (54%). This observation applies even more strongly to Pakistani male smokers (26%) and Bangladeshi male smokers (19%) (Health Survey for England, 2001). This pattern resembles the pattern observed for African American smokers in the U.S. (U.S. Surgeon General Report, 1998), where the lower rates of tobacco use adoption are offset by greater difficulty in quitting the habit among those African Americans who do adopt the habit, compared to most smokers.

Use of smokeless tobacco (chewing or snuff) tends to be more common among South Asians than among most U.K. tobacco users. Tobacco chewing was found to be most common among Bangladeshis. In this group, 19% of men and 26% of women reported chewing tobacco. Among Asian Indians, 6% of men and 2% of women reported chewing tobacco. Among Pakistanis, only 2% of men and 2% of women reported chewing tobacco. Tobacco chewing appeared to be particularly prevalent among older Bangladeshi women: 43% of women aged 35-54 years and 56% of women aged over 55 years chew tobacco. It might be surmised that Asian Indian women originating from the state of Bengal, the state that borders Bangladesh, may show similarly high rates of smokeless tobacco use, because of their cultural similarity to Bangladeshi women.

Awareness of Health Consequences of Tobacco Use Among United Kingdom South Asian Tobacco Users is Low

One of the more disturbing findings from recent U.K. surveys was the low level of knowledge among all South Asians of the health risks associated with smoking or chewing tobacco (Health Education Authority, 2000). The rates of ischemic heart disease (heart attack and angina) are 30% higher among South Asian men than among men in the general population. Death rates from coronary heart disease are 38% higher among South Asian men than among men in the general population. In South Asian women, the excess is 43%. Despite their heightened vulnerability to coronary heart disease (e.g., Pais et al., 1996; Yusuf et al., 2001; Sheth et al., 1999; Lee et al., 2001), few South Asians were aware of the important contribution that tobacco use makes to increasing that risk. Only a quarter of Asian Indians (23%), and slightly more than a quarter of Pakistanis (27%) and Bangladeshis (27%) associate smoking with heart disease. Some 52% of Asian Indians, 47% of Pakistanis, and 41% of Bangladeshis identify a link between smoking and lung cancer. Very few people associate smoking with respiratory diseases other than lung cancer (Asian Indians 11%, Pakistanis 15%, and Bangladeshis 12%). The awareness of the negative health consequences of smokeless tobacco use is also appallingly low (Ahmed et al., 1997; Shetty et al., 1999). The need for increased health education in the immigrant Asian Indian population in the U.K. is apparent.

The epidemiological data on tobacco use among Asian Indians living in North America are more sparse than what was reviewed for the U.K., but some local surveys (e.g., Toronto Working Group, 2001; Tobacco Use in British Columbia, 1997) and recent secondary analyses (e.g., Baluja et al., 2003; McCarthy et al., 2003; Centers for Disease Control and Prevention [CDC], 2004) of existing data sets show tobacco use prevalence patterns concordant with the patterns observed in the U.K.

Most Recent United States Prevalence Rates for Americans of Asian Indian Ancestry

The most generalizable and authoritative of these North American sources was a recent CDC report (CDC, 2004). The authors aggregated responses to the National Survey on Drug Use and Health (NSDUH) (formerly the National Household Drug Abuse Survey (NHDAS) for the years 1999-2001. They reported the prevalence of affirmative answers to the question, "During the past 30 days, have you smoked part or all of a cigarette?" Persons who answered "yes" were classified as current smokers. This definition for current smokers is different from that used by other surveys (Surgeon General Report, 1998), which define adult current smokers as persons aged 18 and over who have smoked >100 cigarettes during their lifetimes and who currently smoke every day or some days. For adults 18 and over, prevalence estimates were 20.0% (95% Confidence Interval [CI] = 12.8 - 29.8) for self-identified Asian Indian men and 3.0% (95% CI = 1.7 – 5.2) for self-identified Asian Indian women. For youth (12-17 years), the comparable prevalence estimates for self-identified Asian Indian boys was 10.1% (95% CI = 4.9-19.8)] and for self-identified Asian Indian girls was 6.8% (95% CI = 2.9-15.1). Although of borderline significance, the smoking prevalence of Asian Indian girls appeared to be already more than twice that of their mothers despite the fact that some of the young teen nonsmoking respondents were likely to pick up the smoking habit in their later teens. By contrast, their brothers reported smoking at only half the rate of their fathers. This same pattern was replicated for Chinese and "other"

Asians. It might also have been confirmed for Filipinos, Japanese, and Koreans if sex-specific prevalence estimates had not been missing for these groups.

Data (unpublished) from the California Healthy Kids Survey during the period: 1999-2001 indicated rates of tobacco use among California adolescents of Asian Indian ancestry that were not much different from the rates of tobacco use observed of most other California adolescents. Table 1.1 indicates the proportion of 7th, 9th, and 11th grade California adolescents who reported smoking at least one cigarette in the last 30 days.

Table 1.1 Proportion of 7th, 9th, and 11th Grade Californians Reporting Having Smoked at Least One Cigarette in the Last 30 Days Prior to the Interview (1999–2001)

		Proportion of Asian Indians who smoke	Total number of Asian Indians	Proportion of non-Asian Indians who smoke	Total number of non-Asian Indians
Female	7th grade	7.9%	1,246	6.8%	94,998
	9th grade	9.7%	922	13.9%	78,721
	11th grade	11.0%	754	19.7%	63,948
Male	7th grade	9.8%	1,366	7.9%	80,430
	9th grade	15.5%	1,037	14.1%	65,387
	11th grade	19.9%	760	21.5%	54,444

From these data it should be apparent that 7th grade girls of Asian Indian ancestry tended to be slightly MORE likely than the average 7th grade girl in California to report tobacco use in the last 30 days. In the upper grades, however, other California girls overtook the Asian Indian girls in their tendency to report having smoked at least one cigarette in the last 30 days, both for 9th and 11th grades, with the difference becoming more pronounced by 11th grade. California boys of Asian Indian ancestry showed a similar pattern, although at higher rates than the corresponding rates for girls of Asian Indian ancestry. The boys of Asian Indian ancestry tended to be MORE likely than their non-Asian Indian classmates to report smoking at least one cigarette in the last 30 days whereas by 11th grade, they were LESS likely to report smoking than their non-Asian Indian classmates.

Inasmuch as the prevalence of adult tobacco use in the U.S. largely reflects the incidence of tobacco use uptake among adolescents, public health policy makers can assume that in a few years the rates of 30-day tobacco use reported for California adolescents of Asian Indian ancestry will reach projected rates expected among young adults in this population. While the 11th grade rates are lower than the rates observed in other Californians, the rates of use are still unacceptably high: nearly one in five boys of Asian Indian ancestry and 11% of girls of Asian Indian ancestry appear to be tobacco users in 11th grade. Moreover, the rates of use for the girls of Asian Indian ancestry, while lower than the rates of use for other girls, appear to be sharply higher than would be expected from the rates of use reported for adult women of Asian Indian ancestry living in the U.S. (3.0%, 95% CI = 1.7,5.2). If adherence to cultural norms prevailing in one's country of origin protects girls and women from smoking, it might be inferred that acculturation to western ways in the U.S. may be accompanied by increased susceptibility of girls to smoking.

Recent Observations About the Impact of Acculturation on Tobacco Use

There is reason to speculate that one of the consequences of acculturation to U.S. social norms is that traditional constraints against female smoking are reduced while men who smoke face increased negative sanctions relative to traditional norms. Assuming that Asian American youth are more likely to be second generation and more fully acculturated to U.S. norms than Asian American adults over the age of 18, we may infer that acculturation may cause a convergence in smoking rates by sex. This has already been observed among different Hispanic ethnic subgroups in relation to acculturation (Perez-Stable et al., 2001) and may likewise help to explain divergent effects of acculturation on smoking, by sex, among Asian ethnic subgroups as well.

The suspicion that immigration status (first vs. later generation immigrant) may influence smoking prevalence is informed also in part by recent research relating smoking status to mixed ethnicity parentage. Ethnic out-marriage is a far more probable outcome in second generation Americans than among first-generation outcomes for the obvious reason that geographical, cultural, and linguistic barriers are necessarily bigger challenges to the first generation immigrant than for U.S. born second-generation immigrants. Unger and associates reported from an analysis of 5,072 random cluster-sampled California 8th graders that it appeared that students reporting mixed ethnic parentage were at significantly higher risk of smoking than students reporting that both parents shared a common ethnic heritage. More direct measures of acculturation have also shown that risk of smoking in California youth appears to increase with increasing acculturation, as reflected by cultural attitudes and language preferences (Chen et al., 1999).

Conclusions

In sum, the most salient and immediate conclusion about Asian Indian tobacco use is that there is remarkably little information about this rapidly growing segment of California's population. What information exists suggests that vulnerability to tobacco use probably depends on acculturation status, religious affiliation, and sex. Myriad other candidate influences, such as Asian ethnic subgroup, educational attainment, and other health practices have hardly been touched on but, based on local observations of immigrant Asian Indians (e.g., Vora et al., 2000; Yeoman and Hayter, 2000), should also be examined as probable influences on tobacco use status.

Chapter 2 Demographic and Cultural Characteristics of California Asian Indian Tobacco Survey Final Sample

Section I Demographic Characteristics of California Asian Indian

- Key findings
- Demographic characteristics of Asian Indians living in the U.S. prior to the survey
- Distribution of Asian Indians living in California, according to 2000 U.S. Census, compared to the distribution of respondents to the 2004 California Asian Indian Tobacco Survey (CAITS).
- Geographic origins of respondents/respondents' parents
- Information about time of immigration, duration of life in the U.S.
- Descriptive information about CAITS respondents' education, income, employment, etc.
- Conclusions

Key Findings

- Confirming recent U.S. Census Bureau demographic statistics reported for U. S. residents of Asian Indian origin, the demographic characteristics of the present sample show impressively high levels of educational attainment and family income.
- Other statistics bespeak a stable family life, employment security, and good health care coverage.
- Only 7.2% of Asian Indians in California report having been born in the U.S.
- A noteworthy finding is that 12% of Asian Indian immigrants report that their country of birth was NOT India but instead was another country in the British Commonwealth and therefore a venue for exposure to Anglo-European language and associated cultural practices.

What was Known About Demographic Characteristics of Asian Indians Living in the United States Prior to the Survey

According to a summary of a recent report from the U.S. Census Bureau, Asian Indians resident in the U.S. have become the most successful "model ethnic minority," with education and income levels far higher than found among native-born whites (Watanabe et al., 2004). The median family income for Asian Indians resident in the U.S. was $70,708, compared to a median family income of $50,046 for all U.S. families. The percentage of Asian Indian adults with a bachelor's degree or higher was a phenomenal 63.9%, compared to only 24.4% for all U.S. families. Asian Indians have done well compared to other Asian immigrants to the U.S. in part because most of them learned and used English in India, where English is one of the nation's legally recognized languages. In contrast, Asian immigrants from other countries had little occasion to use English until they arrived in the U.S. Asian Indians have done well, also, because they were recruited to the U.S. for their specialized skills, especially in medicine, science, and technology, where incomes are relatively high. Not all Asian Indian residents in the U.S. are doing so well, of course. There are pockets of immigrant Asian Indians who work as taxi cab operators, factory workers and newsstand vendors, for instance, whose education and income levels are less impressive.

Distribution of Asian Indians Living in California, According to 2000 United States Census, Compared to Distribution of Respondents to the 2004 California Asian Indian Tobacco Survey

Table 2.1 depicts the distribution of California residents with any Asian Indian heritage, as captured by the 2000 U.S. Census, categorized by California Tobacco Control Section (TCS) region (see Appendix 1.D for description of California's TCS regions). It also juxtaposes comparable statistics, by TCS region, for the respondents to the CAITS, a computer-aided telephone survey of Californians who identified themselves as having Asian Indian heritage.

The respondents to the CAITS were randomly sampled from a sample frame of current published Asian Indian-surnamed California telephone listings. Details concerning the sampling methodology are given in Appendixes 2.A and 2.F). Suffice it to say that past research on selected Asian immigrant populations have successfully reached members of those groups through the use of listed surnames (e.g., Lauderdale and Kestenbaum, 2000).

Because the two surveys were conducted more than four years apart, it is possible that the distribution of Asian Indians in California has changed in ways reflected by the distribution of respondents to the CAITS. Not knowing anything to suggest such redistribution, we corrected for possible differential non-response by region, by gender, and by age. That is, the responses of those interviewees who reported residing in the U.S. at the time of the 2000 U.S. Census were weighted to make their distribution resemble the distribution by age and by gender, of Asian Indians living in California in 2000 (see Appendix 2.G for more detail about the weighting). Whether using either weighted or unweighted data, the following statistical picture is likely to present a reasonably accurate general description of the characteristics of adult Californians of Asian Indian ancestry residing in California during the period June-September 2004

Table 2.1 Number of Adult Asian Indians Enumerated in Census and Final Random Sample.

TCS-Defined Regions	2000 Census		Final Sample	
	Number	%	Number	%
Los Angeles	71,265	19.8	541	16.8
San Diego	12,145	3.4	131	4.1
Orange	30,464	8.5	261	8.1
Santa Clara	70,159	19.5	787	24.4
San Bernardino	8,739	2.4	54	1.7
Riverside	6,612	1.8	48	1.5
Alameda	47,194	13.1	461	14.3
Contra Costa, San Francisco, San Mateo, Marin, Solano	37,711	10.5	356	11.0
Fresno, Imperial, Kern, Kings, Madera, Mariposa, Merced, Tulare	19,963	5.6	121	3.8
Alpine, Amador, Butte, Calaveras, Colusa, Del Norte, El Dorado, Glenn, Humboldt, Inyo, Lake, Lassen, Mendocino, Modoc, Mono, Napa, Nevada, Placer, Plumas, Shasta, Sierra, Siskiyou, Sutter, Sonoma, Tehama, Trinity, Tuolumne, Yuba	13,832	3.8	120	3.7
Sacramento, San Joaquin, Stanislau, Yolo	31,988	8.9	238	7.4
Monterey, San Benito, San Luis Obispo, Santa Barbara, Santa Cruz, Ventura	9,792	2.7	110	3.4
Totals	359,864		3228	

Geographic Origins of Respondents and Their Families

Table 2.2 provides a picture of the geographic origins of the respondents, and if they had not been born in India, then the geographic origins of their parents. As is evident in Table 2.2, the vast majority of interviewees reported being born in India (80.6%). The next most common birth place was the U.S., with but a paltry 7.2% reporting having been born in the U.S. The remaining 12% were born mostly in British commonwealth countries, including Pakistan, the U.K., Canada, the Fiji Islands, Kenya, Bangladesh and Tanzania. These 12% support our contention (McCarthy et al., 2003) that other researchers interested in examining the health practices of U.S. residents of Asian Indian background should not be content with identifying Asian Indians from Social Security records by their country of birth, as a significant number of families of Asian Indian ancestry have sojourned in countries other than India prior to migrating to the U.S. Failing to include immigrant Asian Indians born in countries outside of India not only undercounts Asian Indians but also ignores the fact they were likely raised in countries that featured English and Anglo-European practices before they came to the U.S. Knowing where immigrants were born, if not in the U.S., could improve researchers' ability to predict their cultural practices, including tobacco use. Knowing only whether they were born in U.S. or immigrated to the U.S. is, in other words, a misleading gauge of their exposure to western cultural practices.

For those interviewees reporting that they had NOT been born in India, questions were asked about where their parents had been born and when they had immigrated to the U.S. if applicable. As was observed for the respondents' own geographic origins, Table 2.2 shows that interviewees' parents were most often born in India and if not in India, then in a British Commonwealth country, notably Pakistan (5.3%), Bangladesh (4.5%), and the Fiji Islands (12.4%). It is noteworthy that political changes in these three nations made it difficult for Asian Indian Hindus to thrive. These nations, in fact, explicitly encouraged their Asian Indian Hindu population to emigrate, which they did, but not back to India. It appears that Asian Indian families that have lived for many years or generations outside of India are more prone to immigrate to the U.S. than Asian Indians living in India.

Table 2.2 Country of Birth for: Respondents, Mothers of Respondents, Fathers of Respondents

Country	Respondent Percent [95%CI]	Mothers of Respondents* Percent [95% CI]	Fathers of Respondents* Percent [95%CI]
Bahrain	0 [0.0,0.2]	0.0	0.2 [0.0,1.2]
Bangladesh	0.7 [0.5,1.1]	4.1 [2.8,6.0]	4.5 [3.1,6.4]
Canada	0.6 [0.3,1.0]	0.3 [0.1,1.3]	0.0
Fiji	2.6 [2.0,3.3]	12.7 [10.3,15.6]	12.4 [10.0,15.3]
Guyana	0.1 [0.1,0.4]	1.0 [0.4,2.2]	1.0 [0.4,2.2]
India	80.6 [79.1,82.1]	56.2 [52.2,60.1]	64.9 [61.0,68.6]
Indonesia	0.1 [0.0,0.5]	0.2 [0.0,1.2]	0.2 [0.0,1.2]
Jamaica	0 [0.0,0.3]	0.2 [0.0,1.2]	0.2 [0.0,1.2]
Japan	0.1 [0.0,0.5]	0.0	0.0
Kenya	0.8 [0.6,1.3]	2.1 [1.2,3.7]	1.7 [0.9,3.0]
Malaysia	0.1 [0.0,0.5]	0.3 [0.1,1.3]	0.7 [0.2,1.7]
Myanmar	0.1 [0.0,0.4]	1.0 [0.4,2.2]	0.7 [0.2,1.7]
Nepal	0.3 [0.1,0.6]	1.0 [0.4,2.2]	0.8 [0.3,2.0]
Pakistan	2.3 [1.8,2.9]	6.9 [5.1,9.2]	5.3 [3.8,7.4]
Qatar	0.1 [0.0,0.4]	0.0	0.0
Saudi Arabia	0.1 [0.0,0.3]	0.0	0.0
Singapore	0.1 [0.0,0.5]	0.2 [0.0,1.2]	0.2 [0.0,1.2]
South Africa	0.1 [0.0,0.2]	0.8 [0.3,2.0]	0.5 [0.2,1.5]
Sri Lanka	0.2 [0.1,0.4]	1.2 [0.5,2.4]	0.8 [0.3,2.0]
Tanzania	0.4 [0.2,0.7]	1.8 [1.0,3.2]	1.5 [0.8,2.8]
Trinidad	0.1 [0.0,0.3]	0.7 [0.2, 1.7]	0.5 [0.2,1.5]
United Arab Emirates	0.1 [0.0,0.4]	0.2 [0.0,1.2]	0.0
Uganda	0.3 [0.2,0.6]	1.2 [0.5,2.4]	1.0 [0.4,2.2]
United Kingdom	1.6 [1.2,2.2]	1.2 [0.5,2.4]	0.2 [0.0,1.2]
USA	7.2 [6.4,8.2]	3.8 [2.5,5.6]	1.0 [0.4,2.2]
Zambia	0.0 [0.0,0.1]	0.0	0.3 [0.1,1.3

Note: Asked only of respondents NOT born in India. Cell entries are weighted percentages and 95% confindence intervals.

Table 2.3 describes the distribution of CAITS respondents by the Indian state or territory from which his/her family came. These percentages should be compared to the percentages given in Appendix I, for percentages of the population living in India's states and union territories. It should be apparent that certain states and union territories are over-represented among those who immigrate to the U.S. Historically, immigrants have tended to come from the farmers of the Punjab and from the merchants of Gujarat. More recently, because of the higher literacy and education in south India, the southern India states, such as Tamil Nadu and Kar. have become well-represented. Mumbai (Bombay), the great seafaring port of the state of Maharashtra, has also been a common jumping off point for Asian Indians choosing to immigrate to other spots on the globe. The east coast of India has generally been less well-represented among migrants most recently because the residents of these states tended to be poorer and less educated than the residents of other Indian states and union territories, with the exception of West Bengal. Many Asian Indians of high education and income have their origins in West Bengal (home of Calcutta or Kolkata).

Table 2.3 Distribution of CAITS Respondents by the Indian State or Territory From Which Their Family Came

Indian State	Percent [CI] %	Indian State	Percent [CI] %
Andaman and Nicobar Islands	0.1 [0.0,0.3]	Karnataka	6.3 [5.5,7.2]
Andhra Pradesh	6.1 [5.4,7.0]	Kerala	2.3 [1.8,2.8]
Arunachal Pradesh	0.3 [0.1,0.5]	Madhya Pradesh	1.4 [1.0,1.8]
Assam	0.2 [0.1,0.5]	Maharashtra	13.6 [12.4,14.8]
Bihar	1.3 [1.0,1.8]	Meghalaya	0.0 [0.0,0.2]
Chandigarh	0.8 [0.6,1.2]	Nagaland	0.0 [0.0,0.2]
Chhattisgarh	0.2 [0.1,0.4]	Punjab	20.7 [19.3,22.1]
Daman and Diu	0.1 [0.0,0.3]	Rajasthan	1.3 [1.0,1.7]
Delhi	9.2 [8.2,10.2]	Sikkim	0.0 [0.0,0.2]
Goa	0.2 [0.1,0.4]	Tamil Nadu	8.4 [7.5,9.5]
Gujarat	12.4 [11.3,13.6]	Tripura	0.0 [0.0,0.2]
Haryana	0.9 [0.7,1.3]	Uttar Pradesh	5.5 [4.8,6.4]
Himachal Pradesh	0.1 [0.0,0.3]	Uttaranchal	0.3 [0.1,0.5]
Jammu and Kashmir	0.4 [0.2,0.7]	West Bengal	3.9 [3.3,4.6]
Jharkand	0.1 [0.0,0.3]	Other	1.7 [1.3,2.2]
		Not from a state or union in Indian	2.2 [1.7,2.7]

Cell entries are weighted percentages and 95% confidence intervals.

As we will see in Chapter 3, smoking rates are higher in rural India (as they are now in rural U.S.) as compared to urban areas. Therefore it is pertinent to describe whether the migrants to California brought with them the cultural values of the village or the cultural values of the large city. Table 2.4 describes the distribution of interviewees by whether they originated from a small village or a large urban center in India. Although about half of Asian Indians live in small villages, relatively few of them immigrate to the U.S. Immigration to the U.S. appears to be predominantly an option open to residents of large cities. This makes sense inasmuch as it is in the large cities that Asian Indians can obtain advanced educational training, a prerequisite for most recent would-be immigrants who want to come to the U.S.

Table 2.4 For Those Respondents Who Had Ever Lived in India, Whether They Came From a Village, Town, or Urban Center

	Percent [CI] %
Village	13.3 [12.0,14.6]
Town	10.9 [9.7,12.1]
City	75.9 [74.2,77.5]
Cell entries are weighted percentages and 95% confidence intervals.	

Information About Time of Immigration, Duration of Life in the United States

Table 2.5 describes the distribution of Asian Indian adults residing in California by category of immigration arrival date. This table illustrates how recently most of the immigrants moved to the U.S., with about half coming in just the last ten years.

Table 2.5 Distribution of CAITS Respondents by Arrival Date to the United States

Year arrived in United States	Percent [CI] %
2002-2004	7.9 [7.0,8.9]
1999-2001	24.1 [22.3,25.9]
1996-1999	17.6 [16.1,19.3]
1993-1995	9.2 [8.1,10.4]
1990-1992	8.3 [7.3,9.5]
1975-1989	24.3 [22.6,26.0]
1948-1974	8.7 [7.7,9.8]
Cell entries are weighted percentages and 95% confidence intervals.	

The typical immigration process for an Asian Indian migrant is for the ambitious and skilled male to come over to the U.S. as an individual, obtain security of employment, and then to ask his parents to select a bride in India to join him. This pattern shows up in cross-tabulating interviewees' immigration dates for their mothers and fathers, as we see in Table 2.6. There is a consistent lag between the time the father immigrated to the U.S. and the time the mother came. One noteworthy comment is that the population of Asian Indians resident in the U.S. doubled from 1990 to 2000, mostly from immigration, which explains why such a high proportion now report not having been born in the U.S.

Table 2.6 Relationship of Year of Mother's Immigration to the United States with Year of Father's Immigration to the United States

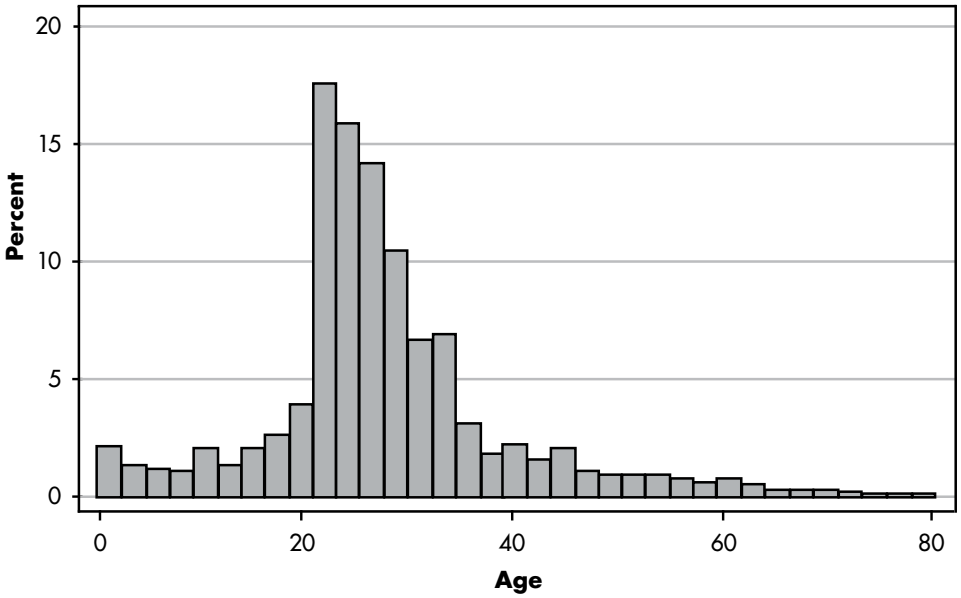
	Father's year of immigration					
Mother's year of immigration	**1920-1969 %**	**1970-1979 %**	**1980-1989 %**	**1990-1999 %**	**2000-2004 %**	**Total %**
1920-1969	12.7 [10.6,15.2]	0.4 [0.1,1.2]	0.0	0.0	0.0	13.1 [10.9,15.7]
1970-1979	6.2 [4.7,8.1]	21.7 [19.0,24.7]	0.3 [0.1,1.0]	0.1 [0.0,0.9]	0.0	28.2 [25.2,31.5]
1980-1989	0.3 [0.1,1.0]	1.8 [1.0,3.0]	22.8 [20.0,25.9]	0.6 [0.3,1.5]	0.0	25.5 [22.6,28.6]
1990-1999	0.1 [0.0,0.9]	0.0	3.0 [2.0,4.5]	22.1 [19.3,25.1]	0.4 [0.1,1.2]	25.6 [22.7,28.8]
2000-2004	0.0	0.0	0.0	1.0 [0.5,2.0]	6.6 [5.0,8.5]	7.6 [5.9,9.6]
Total	19.3 [16.7,22.2]	23.8 [21.0,26.9]	26.1 [23.2,29.3]	23.8 [21.0,26.9]	6.9 [5.4,8.9]	100.0

F(15.00, 11880.00) = 149.8311; $p < 0.01$
Cell entries are weighted percentages and 95% confidence intervals.

What is the typical age of the respondent when he/she immigrates to the U.S.? Obviously this is not pertinent for those who were born in the U.S. but some do immigrate as youngsters, in the company of their imigrating parents. Figure 2.1 illustrates that the typical age of the new migrant is a person in his/her early or middle twenties.

As might be inferred from the foregoing, there is likely to be an age difference between those Asian Indians who were born in

Figure 1.1 Age When Immigrated to the United States



the U.S. and those who immigrated to the U.S. Table 2.7 illustrates that immigration status of respondents is strongly associated with their age. Any posited effect of age on a behavioral outcome of interest needs to account for the confounding influence of immigration status in studies of Californians of Asian Indian ancestry.

Table 2.7 United States Immigration Status by Age Grouping

Age group	Born in United States %	Immigrated to United States %	Total
18-29 years	64.7 [58.3,70.5]	35.2 [33.1,37.3]	37.3 [35.4,39.3]
30-39 years	29.7 [24.2,35.9]	28.0 [26.4,29.6]	28.1 [26.6,29.7]
40-49 years	4.7 [2.6,8.4]	17.9 [16.4,19.4]	16.9 [15.6,18.3]
50+ years	0.9 [0.2,3.4]	18.9 [17.5,20.5]	17.6 [16.3,19.1]
Total	100.0	100.0	100.0

Cell entries are weighted percentages and 95% confidence intervals.

Descriptive Information About CAITS Respondents' Education, Income, Employment, etc.

Table 2.8 describes the distribution of CAITS respondents by gender and by age group. The observed asymmetry in the prevalence of Asian Indian men and Asian Indian women is an artifact of men waiting years to marry as they secure steady employment in the U.S. and acquire enough resources to support a family before marrying brides presumably younger than they are. The relative dearth of women in the older age ranges is also attributable to discriminatory immigration prohibitions in the U.S. that did not permit already naturalized Asian Indian American citizens to bring a wife over from India as a fellow naturalized U.S. citizen until the Immigration and Naturalization Reform Act of 1965 loosened these restrictions.

Table 2.8 Distribution of CAITS Respondent by Gender and Age Grouping

Age group	Female %	Male %	Total
18-29 years	32.7 [30.3,35.2]	20.4 [18.6,22.4]	25.9 [24.4,27.5]
30-39 years	37.8 [35.4,40.4]	36.8 [34.6,39.1]	37.3 [35.6,39.0]
40-49 years	16.5 [14.6,18.5]	19.1 [30.3,35.2]	17.9
50+ years	13.0 [11.3,14.8]	23.7 [21.7,25.7]	18.9 [17.6,20.3]

Design-based F(3, 9594) = 32.2613; p < 0.01
Cell entries are weighted percentages and 95% confidence intervals.

Table 2.9 describes the distribution of CAITS respondents by educational attainment, classified by gender. These data are consistent with the recent report by the Bureau of the Census (Watanabe and Wride, 2004) that Americans of Asian Indian ancestry have enviably high rates of higher educational attainment. In the CAITS sample, over 80% had completed a college degree (versus 24% for all Americans over the age of 25) and nearly half had obtained additional postgraduate training. Inasmuch as literacy rates are considerably lower in India than they are in the U.S., these superlative educational statistics must reflect the differential advantage afforded to Asian Indians who have acquired specialized skills in technologically important areas of knowledge if they want to immigrate to the U.S. Professor Vinay Lal, an expert on the Indian Diaspora, was quoted by Watanabe and Wride (2004) as saying that half of all graduates of the India's prestigious India Institute of Technology (IIT) in recent years have immigrated to the U.S. This represents a phenomenal brain drain from one country to another, but reflects

also the much greater opportunities to use technologically advanced skills to maximum advantage in the U.S. as compared to India. Despite fairly wide discrepancies in educational achievement between the sexes in India, California Asian Indian men (or their families) appear to prefer to marry women nearly as educated as they are. Asian Indian and U.S. tobacco use patterns generally show lower rates of tobacco use with increasing educational attainment which suggests that the high rates of educational attainment in the present sample might portend relatively low rates of tobacco use.

Table 2.9 CAITS Respondents' Educational Attainment by Gender

	Female %	Male %	Total
Less than High School	5.3 [4.2,6.6]	4.6 [3.7,5.7]	4.9 [4.2,5.7]
High School	6.2 [5.0,7.5]	5.8 [4.8,7.0]	6.0 [5.2,6.8]
Some College, Trade School	9.0 [7.6,10.6]	7.9 [6.7,9.2]	8.4 [7.5,9.4]
College Degree	33.8 [31.4,36.3]	28.7 [26.6,30.8]	31.0 [29.4,32.6]
Graduate/Professional School	45.7 [43.1,48.3]	53.1 [50.8,55.4]	49.8 [48.1,51.5]
F(4, 12884) = 4.4581; p = 0.0013 Cell entries are weighted percentages and 95% confidence intervals.			

Table 2.10 describes the distribution of CAITS respondents by household income, by gender. As could be expected for a very educated population, California Asian Indians report high levels of household income, with over half reporting household incomes that exceed $75,000 per year. This is consistent with the recent report from the U.S. Census bureau, which reported from 2000 Census data that Asian Indian households were averaging $70,708 per year (Watanabe and Wride, 2004). The near-equality of incomes between men and women probably reflects the high rate of marriage in this group.

Table 2.10 CAITS Respondents' Household Income by Gender

	Female %	Male %	Total
Less than $20K	8.6 [7.1,10.3]	8.8 [7.5,10.3]	8.7 [7.7,9.8]
$20-<50K	16.6 [14.6,18.8]	16.3 [14.6,18.2]	16.4 [15.1,17.9]
$50-<75K	17.5 [15.4,19.7]	15.2 [13.5,17.1]	16.2 [14.9,17.6]
$75-<100K	22.6 [20.3,25.1]	21.0 [19.1,23.1]	21.7 [20.2,23.3]
>$100K	34.8 [32.1,37.5]	38.7 [36.3,41.1]	37.0 [35.2,38.8]
F(4, 11040) = 1.4339; p = 0.2199 Cell entries are weighted percentages and 95% confidence intervals.			

Not all California Asian Indians are affluent, however, as is suggested by Table 2.13. Table 2.13 describes the distribution of CAITS respondents by interview language and household income. Respondents had the option of being interviewed in English, Gujarati, Punjabi or Hindi. Most highly educated Asian Indians have had daily exposure to English in their schools from their earliest school days. Less educated migrants from India might feel more comfortable answering the interviewer's questions in Gujarati, Punjabi or Hindi. But English is the language of commerce, so lack of comfort with English could have implications for an individual's marketability and personal income. Indeed, Table 2.11 clearly illustrates the relationship between English fluency and income.

Table 2.11 Relationship Between Household Income and Primary Language Used During Interview

Household income	English %	Gujarati %	Hindi %	Punjabi %	Total %
<$20K	5.9 [4.9,7.0]	33.5 [18.7,52.6]	40.0 [29.8,51.3]	47.5 [37.9,57.3]	9.5 [8.4,10.9]
$20K-<50K	15.2 [13.7,16.9]	51.5 [33.4,69.2]	34.6 [24.6,46.1]	38.8 [30.1,48.3]	17.6 [16.0,19.2]
$50K-<75K	17.9 [16.3,19.6]	5.6 [1.3,21.5]	11.6 [6.1,20.7]	7.4 [3.6,14.8]	17.0 [15.5,18.6]
$75K-<100K	24.2 [22.4,26.2]	4.3 [0.6,24.9]	8.1 [2.4,23.4]	4.3 [2.0,9.1]	22.4 [20.7,24.2]
>$100K	36.7 [34.7,38.8]	5.1 [1.2,19.0]	5.8 [2.3,13.8]	1.9 [0.7,5.2]	33.5 [31.6,35.4]
Total	100.0	100.0	100.0	100.0	100.0
Design-based F(10.41, 28739.62) = 37.01; p < 0.01					

Table 2.12 describes the distribution of CAITS respondents by employment status, by gender. As is common for individuals with advanced educational attainment, the 4% unemployment rate among Asian Indian men is lower than the 5.4% unemployment rate nationally (Bureau of Labor Statistics [BLS], 2005). The Asian Indian women report higher rates of involuntary unemployment, but not appreciably higher than the national average. The sex difference in prevalence of "employed for wages" reflects the quarter of women who are too busy with child care to engage simultaneously in paid employment and reflects the strong cultural preference for Asian Indian men to spend their workdays on activities unrelated to taking care of children.

Table 2.12 CAITS Respondents' Employment by Gender

	Female %	Male %	Total
Employed for wages	41.2 [38.7,43.8]	70.1 [67.9,72.2]	57.1 [55.4,58.8]
Self-employed	6.8 [5.6,8.2]	11.9 [10.4,13.5]	9.6 [8.6,10.7]
Out of work >1 year	5.8 [4.7,7.1]	2.0 [1.4,2.7]	3.7 [3.1,4.4]
Out of work <1year	3.6 [2.8,4.7]	2.0 [1.4,2.7]	2.7 [2.2,3.3]
Homemaker	28.1 [25.8,30.5]	0.5 [0.3,1.0]	12.9 [11.8,14.1]
Student	10.7 [9.2,12.4]	5.9 [4.9,7.1]	8.0 [7.2,9.0]
Retired	2.3 [1.6,3.2]	6.6 [5.5,7.9]	4.7 [4.0,5.5]
Unable to work	1.5 [1.0,2.2]	1.1 [0.7,1.7]	1.2 [0.9,1.7]
F(7.00, 22428.00) = 99.9824; p < 0.01 Cell entries are weighted percentages and 95% confidence intervals.			

The relatively high employment levels reported by Californian Asian Indians ensure good access to health insurance. Indeed, Table 2.13 shows high rates of health insurance coverage for California Asian Indians and their families, above the national average of 84.4% (DeNavas et al., 2004) and particularly impressive for an immigrant group in California.

Table 2.13 CAITS Respondents' Health Insurance Status by Gender

	Female %	Male %	Total
Any kind of health care coverage	90.7 [89.1,92.1]	90.7 [89.2,92.0]	90.7 [89.6,91.6]
No health care coverage	9.3 [7.9,10.9]	9.3 [8.0,10.8]	9.3 [8.4,10.4]
F(1, 3200) = 0.0000; p = 0.9967 Cell entries are weighted percentages and 95% confidence intervals.			

Table 2.14 describes the distribution of CAITS respondents by marital status and by gender. These statistics bespeak a stable family structure, predicated on marriage. The percent of U.S. adults who are married according to recent statistics is 56% (Lugaila et al., 1998). Neither divorce nor cohabitation is common in the California Asian Indian community.

Table 2.14 CAITS Respondents' Marital Status by Gender

	Female %	Male %	Total
Married	80.0 [77.9,82.0]	76.1 [74.1,78.0]	77.9 [76.4,79.3]
Divorced	2.8 [2.1,3.8]	2.1 [1.5,2.9]	2.4 [1.9,3.0]
Widowed	2.5 [1.8,3.4]	1.4 [0.9,2.0]	1.9 [1.5,2.4]
Separated	0.6 [0.3,1.2]	0.7 [0.4,1.2]	0.7 [0.4,1.0]
Never married	12.6 [11.0,14.4]	18.7 [17.0,20.6]	16.0 [14.8,17.3]
Member of an unmarried couple	1.4 [0.9,2.1]	1.0 [0.6,1.6]	1.2 [0.9,1.6]
F(5.00, 16060.00) = 5.7116; p < 0.01 Cell entries are weighted percentages and 95% confidence intervals.			

Table 2.15 describes the distribution of CAITS respondents by total number of residents in household, by gender. The single life is not common among California Asian Indians, particularly among Asian Indian women, but that too is an artifact of the process by which Asian men and women immigrate. If the Asian Indian woman were not immigrating to join her husband, why would she be in the U.S.? Historically the Asian Indian woman could expect to live in the house of her parents until the day when she marries, after which she lives in the house of her husband. Although social norms may be changing in India, the common expectation is still for Asian Indian women to live with her birth family until she marries; living alone is frowned upon. The social control that this imposes on women may "protect" them from engaging in unhealthful lifestyle habits and may thereby protect them from tobacco use in households that are tobacco-free.

Table 2.15 CAITS Respondents' Total Number of Residents in Household by Gender

Number of residents in household, including self	Female %	Male %	Total
1 person	5.5 [4.5,6.8]	10.9 [9.5,12.4]	8.5 [7.6,9.5]
2 persons	24.0 [21.9,26.3]	24.9 [22.9,27.0]	24.5 [23.0,26.0]
3 persons	27.0 [24.7,29.3]	24.0 [22.1,26.1]	25.4 [23.9,26.9]
4 persons	28.1 [25.8,30.5]	25.3 [23.4,27.4]	26.6 [25.1,28.1]
5 persons	9.1 [7.7,10.7]	8.2 [7.0,9.6]	8.6 [7.7,9.6]
6+ persons	6.3 [5.2,7.7]	6.6 [5.6,7.9]	6.5 [5.7,7.4]

F(6.00, 19361.99) = 6.2962; p < 0.01
Cell entries are weighted percentages and 95% confidence intervals.

Table 2.16 describes the distribution of CAITS respondents by number of residents under age 18 in household, by gender of respondent. What is striking, in view of the Asian Indian penchant for population growth, is the very sharp drop off that is observed at a family of four. Asian Indian professionals are apparently as subject to the work-related pressures to limit child-raising to no more than two children as other urban professionals are around the world, no matter what the culture. This represents a break with historical Asian Indian reproductive cultural patterns. As with any significant cultural break, this notable departure from historical cultural practice may sow the seeds of disregard for other significant cultural norms, such as the negative community regard for smoking by women.

Table 2.16 CAITS Respondents' Number or Residents Under Age 18 in Household by Gender

Number	Female %	Male%	Total
0	40.1 [37.6,42.6]	50.5 [48.2,52.8]	45.8 [44.1,47.5]
1	29.8 [27.5,32.2]	23.9 [21.9,25.9]	26.5 [25.0,28.1]
2	25.6 [23.4,27.9]	21.3 [19.5,23.3]	23.2 [21.8,24.7]
3	3.7 [2.8,4.8]	3.6 [2.8,4.5]	3.6 [3.0,4.3]
4	0.5 [0.2,1.0]	0.6 [0.3,1.1]	0.6 [0.4,0.9]
5	0.3 [0.1,0.8]	0.2 [0.1,0.5]	0.2 [0.1,0.5]

F(5.00, 16050.00) = 7.3874l; p < 0.01
Confidence Intervals weighted by county gender and age to reflect United States Census distributions

Conclusions

Confirming recent U.S. Census Bureau demographic statistics reported for U.S. residents of Asian Indian origin, the demographic characteristics of the present sample show impressively high levels of educational attainment and family income. Other statistics bespeak a stable family life, employment security, and good health care coverage. Asian Indian adults in California are more likely to be married than other Americans and less likely to be divorced. The men are more likely to be employed than other Americans. Their families are more likely to be covered by health insurance. Only 7.2% of Asian Indians in California report having been born in the U.S. A noteworthy finding is that 12% of Asian Indian immigrants report that their country of birth was NOT India but instead was another country in the British Commonwealth and therefore a venue for exposure to Anglo-European language and associated cultural practices. For ethnic groups with a history of diaspora, such as the Chinese, Jews and Asian Indians, simply asking whether they were born in the U.S. or not will fail to distinguish between those born in the country of national origin and those born in sojourner countries prior to immigrating to the U.S. If the sojourner countries are Anglophone countries, as is the case for many Asian Indians, these countries could serve as additional sources of exposure to "western" norms and cultural practices similar to those found in the U.S.

Section II Cultural Differences and Measures of Acculturation in Californians of Asian Indian Ancestry

- Key findings
- Links between culture and lifestyle practices – prefatory comments
- Duration of exposure to U.S. cultural norms and cultural practices as index of acculturation
- Preferred language use as reflective of acculturation
- Self-assessed acculturation
- Observance of religious traditions as index of acculturation
- Composite measures of acculturation and religiosity
- Conclusion

Key Findings

- When examining key indicators of adherence to cultural norms, such as language, religion, and cultural self-identification, California Asian Indian men are consistently more acculturated to American practices than Asian Indian women, but not strikingly so. In self-descriptions of how acculturated they feel, Asian Indian women are 29% more likely than the Asian Indian men to report feeling more like an Asian Indian than like an American.
- Duration of time spent in the U.S. was generally associated with increasing acculturation to U.S. social norms and cultural practices, which partly explained observed sex differences, because Asian Indian women on average had spent less time in the U.S. than Asian Indian men.
- Some facile indicators of acculturation, such as whether a Californian of Asian Indian ancestry was born in the U.S. or not, are shown to be somewhat misleading.
- A survey question that asked respondents to report their own judgment about whether they felt more "American" or more "Indian" was found to be empirically related to a composite of indicators including observance of Asian Indian holidays, preference for eating Asian Indian food, preferring to speak a native Asian Indian language in the home and preference to read Asian Indian newspapers, magazines.
- Other indicators, such as religiosity, turned out to be nonlinearly related to other measures of acculturation, notably degree of cultural identification as "American."

The Links Between Culture and Lifestyle Practices–Prefatory Comments

In every major culture and established religion normative beliefs are recognized with respect to specific health practices, including those practices related to eating, drinking, physical activity, rest, disease, psychoactive drug use, hygiene and appropriate attire. Public health surveillance efforts increasingly include ethnicity as an important predictor of observed differences in health-related lifestyle practices (e.g., Leischow, 2000; United States Department of Health and Human Services (USDHHS), 1998). Only recently however have public health surveillance efforts begun to focus on the obvious corollary to the recognized relationship between cultural affiliation and health-related lifestyle practices: when individuals transition from one culture to another, the individuals' health practices will also change (e.g., Lee et al., 2000). The obvious prediction is that the change in health-related lifestyle behaviors will move towards greater conformity with the normative behaviors in the culture that the individual is adopting. One might similarly expect a reduction in conformity with the normative behaviors associated with the culture of origin.

Recent consensus among experts in this small but burgeoning field, however, suggests that adoption of a new culture need not entail concomitant abandonment of the culture of origin. If Asian Indians immigrate to the U.S. and acculturate, it need not necessarily mean an abandonment of traditions and cultural practices associated with their life in India. In other words, Asian Indians can become bi-cultural in much the way that migrants to the U.S. often become bilingual. Typically Asian Indian practices may continue in the home setting every day even as typically U.S. practices become adopted in their everyday work.

Berry and associates (1987) have strenuously argued against the assumption that the adopting of a new culture inevitably entails the abandonment of the old. He and others instead argue for a more complex view of acculturation as holding the possibility of combining both cultures by being flexibly "bicultural" as needs dictate. Others have echoed this on theoretical grounds (e.g., LaFromboise et al., 1993) and there has been some support for this in terms of predicting which immigrant adolescents drop out of school (Felicano, 2001) but recent empirical evidence has suggested, at least with respect to tobacco use behavior, that monoculturalism may be more protective than biculturalism (Chen et al., 1999). The safest prediction is to agree with Lee and her associates (2000) that acculturation will have some kind of impact on health practices, but that whether the effect will be healthy or unhealthy will depend on the characteristics, resources, and aspirations of the individuals experiencing acculturation.

This report is intended to contribute to the small but growing literature on the impact of acculturation on health-related lifestyle change, specifically on tobacco use.

Duration of Exposure to United States Cultural Norms and Cultural Practices as Index of Acculturation

There are many ways to define and measure adherence to cultural practices and to quantify acculturation. This chapter discusses several approaches but does not pretend to be exhaustive. Patterns that appear to be replicated across these different approaches will be patterns about which we can have confidence that they reflect the operation of cultural change.

One common way to evaluate the likelihood that acculturation is a possible influence on health-related lifestyle choices is to presume that acculturation increases with duration of exposure to the new culture and then to evaluate the covariation between observed health-related lifestyle choices and time spent living in the new culture.

Table 2.17 shows the distribution of California Asian Indians with respect to time spent in U.S. culture, broken down by gender. As noted previously, immigrant Asian Indian men tend to precede their female partners in immigrating to the U.S. and hence will have had, on average, more exposure to U.S. cultural practices. Mere duration will not explain the entire likely difference between Asian Indian men and women, however, because even when the women have immigrated, they will spend more time in homecare activities that may entail spending more time with extended family members than with native born U.S. residents. Spending more time in paid employment settings, as the men are more likely to do, is likely to maximize exposure to native born U.S. residents.

Table 2.17 Distribution of Respondents, by Duration of Life in United States and by Gender

Duration of life in United States	Female %	Male %	Total %
0-5 years	33.2 [30.7,35.9]	26.4 [24.0,28.9]	29.6 [27.9,31.5]
6-10 years	20.0 [17.9,22.3]	24.2 [21.9,26.6]	22.2 [20.6,23.8]
11-20 years	22.8 [20.5,25.3]	23.1 [21.1,25.3]	23.0 [21.4,24.6]
21-30 years	15.8 [13.8,17.9]	15.9 [14.1,17.9]	15.8 [14.5,17.3]
More than 30 years	8.2 [6.7,9.9]	10.4 [9.1,11.9]	9.3 [8.3,10.4]
Total	100.0	100.0	100.0

Cell entries are weighted percentages and 95% confidence intervals.

Preferred Language Use as Reflective of Acculturation

Another common way to quantify adoption of the U.S. culture is to assess the frequency of English use during daily activities as compared to the frequency of use of non-English languages.

Table 2.18 shows the variety of Asian Indian languages spoken by California Asian Indians, broken down by gender. Many Asian Indians are brought up learning the language of their region of birth as well as either Hindi or English, because both Hindi and English are legally designated national languages of India. Most South Indians do not speak Hindi or have a minimal comprehension of the language. Thus there is a greater emphasis on English education in South India. Well-to-do Asian Indians also make sure that their children know English. Almost all private schools in India teach in English; most public schools teach in Hindi, except in Southern India. This table illustrates the variety of languages spoken by CAITS interviewees. Although little more than 30% of Asian Indians speak Hindi in India, 79% of our sample knew Hindi. None of the other regional languages came close. Examination of the map of India given in Appendix 1.A and comparison of numbers who speak a specific language in India compared to the numbers in our sample who speak that language will show what was discussed earlier about the uneven distribution of Asian Indian states among the immigrants who came to the U.S. Bengali, which is spoken by 68 million mostly around West Bengal, in the northeast of India, was spoken by only 7% of the CAITS interviewees, whereas Punjabi, which is spoken by nearly 25 million in the Punjab region in northwestern India, was spoken by 28% of the CAITS interviewees. Gujarati- and Tamil-speaking interviewees were similarly over-represented. This is just one more way in which Asian Indian immigrants do not and should not be regarded as representative of Indians in India.

Table 2.18 Frequency of Asian Indian Languages Spoken, by Gender

Indian language spoken by respondents	Estimated number of speakers in 1995 (in millions)	Number of CAITS Women who Speak...	Number of CAITS men who speak...	Total* number or respondents who speak....
Assamese	14.8	6	5	11
Bengali	68.3	97	122	219
Gujarati	44	293	317	610
Hindi	350.3	1,159	1,386	2,545
Kannada	35.7	94	119	213
Kashmiri	<5	5	5	10
Konkani	<5	21	22	43
Malayalam	34.4	48	53	101
Manipuri	<5	0	2	2
Marathi	65.8	175	197	372
Nepali	<5	4	2	6
Oriya	30.3	15	10	25
Punjabi	24.7	388	520	908
Sindhi	<5	15	11	26
Tamil	59.3	194	244	438
Telugu	71.9	127	148	275
Urdu	46.8	90	189	279

*Note. Total exceeds N=3228 because respondents were able to choose more than one language.

Table 2.19 Frequency of Asian Indian Languages Spoken, by Gender

Indian language spoken by respondents	Estimated percent of speakers in 1995	Percent of CAITS women who speak...	Percent of CAITS men who speak...	Total* Percent of respondents
Assamese	1.7	0.2	0.1	0.2
Bengali	7.8	3.6	3.6	3.6
Gujarati	5.0	10.7	9.5	10.0
Hindi	40.2	42.4	41.3	41.8
Kannada	4.1	3.4	3.6	3.5
Kashmiri	0.6	0.2	0.1	0.2
Konkani	0.6	0.8	0.7	0.7
Malayalam	3.9	1.8	1.6	1.7
Manipuri	0.6	0.0	0.1	0.0
Marathi	7.6	6.4	5.9	6.1
Nepali	0.6	0.1	0.1	0.1
Oriya	3.5	0.5	0.3	0.4
Punjabi	2.8	14.2	15.5	14.9
Sindhi	0.6	0.5	0.3	0.4
Tamil	6.8	7.1	7.3	7.2
Telugu	8.3	4.7	4.4	4.5
Urdu	5.4	3.3	5.6	4.6

*Note. Respondents were able to choose more than one language. Percentage calculated as total of responses.

As is apparent in Table 2.20, Asian Indian men are more likely to report that English is their primary language than Asian Indian women. If English language use is an indication of acculturation to U.S. social norms, then the men are likely, on average, to be more acculturated than Asian Indian women. This is consistent with other evidence, such as duration in the U.S., which also contributes to Asian Indian men being more acculturated to U.S. social norms.

Table 2.20 Distribution of Respondents by Whether English is Their Primary Language, by Gender

English is Respondent's primary language	Female %	Male %
No	52.6 [49.8,55.4]	43.2 [40.7,45.8]
Yes	47.4 [44.6,50.2]	56.8 [54.2,59.3]
Total	100.0	100.0

Note. Design-based F(1, 3209) = 23.27; $p < 0.01$
Cell entries are weighted percentages and 95% confidence intervals.

Table 2.21 illustrates that knowledge of an Asian Indian language other than English is nearly universal among those born outside of the U.S. but cannot be assumed in those born in the U.S, because 30% of those born in the U.S. report knowing no Asian Indian language other than English. This is an illustration of a long-standing observation that acculturation to U.S. cultural norms is accompanied, cross-generationally, by rapid loss of the native language that the first generation immigrants brought with them to the U.S.

Table 2.21 Distribution of Respondents by Whether They Know an Asian Indian Language Other than English, by Immigration Status

English is Respondent's primary language	United States born %	Immigrated to United States %
No	30.0 [24.5,36.2]	2.9 [2.3,3.7]
Yes	70.0 [63.8,75.5]	95.1 [94.2,95.9]
Total	100.0	100.0

Note. Design-based F(1, 3227) = 299.63; p < 0.01
Cell entries are weighted percentages and 95% confidence intervals.

Self-assessed Acculturation

A less common but intuitively obvious way to quantify acculturation to U.S. norms is simply to ask Asian Indians living in California the extent they consider themselves to be American. It is instructive to compare self-assessment of acculturation with more traditional and objective measures, such as duration of life spent in the U.S. or preferred language used in the home.

Table 2.22 shows the distribution of California Asian Indians across different categories of self-assessment as feeling more like an American versus feeling more like an Asian Indian. As we might have suspected from earlier discussion about acculturation differences between Asian Indian men and Asian Indian women, the women are more likely to characterize themselves as Asian Indian; the men are more likely to characterize themselves as American (OR = 1.29, 95% CI = 1.20, 1.39).

Table 2.22 Distribution of California Asian Indians Across Categories of Self-assessed Acculturation, by Gender

Cultural identity	Female %	Male %	Total %
Full Indian	28.3 [25.9,30.9]	20.2 [18.0,22.5]	24.1 [22.5,25.9]
Indian first, American second	15.8 [13.8,18.0]	16.6 [14.7,18.7]	16.2 [14.8,17.7]
Blend of Indian and American	50.2 [47.3,53.0]	49.3 [46.7,52.0]	49.7 [47.8,51.7]
American first, Indian second	3.7 [2.8,4.9]	7.7 [6.4,9.2]	5.8 [5.0,6.7]
Full American	2.0 [1.4,3.0]	6.2 [5.1,7.5]	4.2 [3.5,5.0]
Total	100.0	100.0	100.0

Design-based F(3.99, 12445.93) = 16.04; p < 0.01
Cell entries are weighted percentages and 95% confidence intervals.

Table 2.23 shows the cross-tabulation of self-assessments versus a first-generation versus second-generation classification defined by age when immigrated to the U.S.

Table 2.23 Self-assessed Cultural Identification, Categorized by Whether the Respondent was First or Second-plus Generation Immigrant*

Cultural identity	First generation %	Second+ generation %	Total %
Full Indian	26.8 [24.9,28.7]	6.3 [4.1,9.6]	24.3 [22.6,26.0]
Indian first, American second	16.4 [15.0,18.0]	13.9 [10.2,18.6]	16.1 [14.7,17.6]
Blend Indian and American	49.2 [47.1,51.2]	52.8 [47.1,58.4]	49.6 [47.7,51.6]
American first, Indian second	4.4 [3.7,5.3]	15.9 [12.4,20.2]	5.8 [5.0,6.7]
Full American	3.3 [2.6,4.0]	11.1 [8.1,15.1]	4.2 [3.5,5.0]
Total	100.0	100.0	100.0

Design-based F(3.97,12221.78) = 37.34; $p < 0.01$
Note. Respondents born in India but who immigrated to the United States before age six are considered second generation.
Cell entries are weighted percentages and 95% confidence intervals.

A confounding influence on acculturation, if time since immigration to the U.S. is used as the measure, is the nation of origin of the immigrant. Because of the Indian Diaspora, a small but significant fraction (12%) of Asian Indians in California emigrated not from India but from other countries, such as the U.K., where English cultural norms prevail. It is not sufficient, in other words, to gauge exposure to western cultural norms by the length of the respondent's duration in the U.S.

Table 2.24 shows the cross-tabulation of self-assessed cultural identity versus the classification of "western-born" versus "India-born" Asian Indians. It is apparent that being born in a western country, even if it is not the U.S., is associated with a greater likelihood of perceiving oneself as being more "American" and less "Indian."

Table 2.24 Self-assessed Cultural Identity in Relation to Whether the Respondent was Born in Western Country or Not

Cultural identity	Not born in western country %	Born in western country %	Total %
Full Indian	25.6 [23.8,27.5]	10.2 [6.9,14.8]	24.0 [22.4,25.8]
Indian first, American second	16.9 [15.4,18.5]	11.0 [7.8,15.1]	16.3 [14.9,17.8]
Blend Indian and American	49.7 [47.7,51.8]	50.6 [44.7,56.4]	49.8 [47.9,51.8]
American first, Indian second	4.5 [3.8,5.4]	15.9 [12.2,20.5]	5.7 [4.9,6.6]
Full American	3.3 [2.6,4.0]	12.4 [9.0,16.8]	4.2 [3.5,5.0]
Total	100.0	100.0	100.0

Western countries included: Australia, Canada, Hong Kong, Israel, Italy, Japan, Netherlands, New Zealand, Portugal, Russia, Sweden, Switzerland, United Kingdom, United States.
Design-based F(3.95, 12056.47) = 33.16; $p < 0.01$
Cell entries are weighted percentages and 95% confidence intervals.

Another consideration is whether one's other family members, particularly one's parents, had immigrated to the U.S. If monolingual, non-English speaking parents accompany young adults to the U.S., the reliance on an ethnic Asian Indian language to communicate regularly with one's parents may help Asian Indian language and cultural habits persist in the U.S. despite the pressures toward acculturation.

Table 2.25 shows the proportion of California Asian Indians who report that one or both parents immigrated to the U.S, by self-assessed acculturation status. The relationship between acculturation and whether one or both parents accompanied the migrant was the opposite of what was predicted–those accompanied by both parents were more likely to described themselves as "Americans" than those accompanied by only one parent or none when they emigrated. This result occurred presumably because the average age at immigration must have been younger for those who could still have parents accompany them to the U.S. Indeed, a comparison between first generation migrants who did have parents accompany them to the U.S. and first generation migrants who did not, the former were on average 7.5 years younger (20.9 years [95% CI = 20.1-21.8] versus 28.4 years [95% CI = 28.0 – 28.9]).

Table 2.25 Proportion of California Asian Indians Who Reported that One or Both Parents Immigrated to the United States, by Self-assessed Acculturation Status

Cultural identity	No parent immigrated to U.S. %	Yes, parent(s) did immigrate to U.S. %	Total %
Full Indian	30.3 [28.1,32.6]	17.0 [14.0,20.6]	26.7 [24.9,28.6]
Indian first, American second	16.6 [15.0,18.4]	15.7 [12.8,19.0]	16.4 [14.9,17.9]
Blend Indian and American	46.6 [44.2,48.9]	57 [52.7,61.1]	49.4 [47.3,51.4]
American first, Indian second	3.8 [3.0,4.7]	5.9 [4.3,8.1]	4.4 [3.6,5.2]
Full American	2.7 [2.1,3.5]	4.4 [3.1,6.3]	3.2 [2.6,3.9]
Total	100.0	100.0	100.0

Design-based F(3.95, 10868.07) = 11.72; $p < 0.01$
Cell entries are weighted percentages and 95% confidence intervals.

Observance of Religious Traditions as Index of Acculturation

When experts discuss major features of different cultures, they often speak of the religious practices common in those cultures. In the case of India, there are numerous religions but two predominate: Hinduism and Islam. For the purpose of evaluating the impact of adherence to one's religion on tobacco use, we will [later] make the assumption that adherence to ANY religion should be associated with less tobacco use. Most religions discourage psychoactive drug use, licit or illicit. There is nonetheless merit to examining possible tobacco use differences between respondents adhering to different religions, but the assumption going into the later analyses is that the differences in tobacco use between religions will be less important than the effect of religiosity independent of specific religion.

Table 2.26 shows the distribution, by gender, in adherence to different religions among California Asian Indians. Because of the historically disproportionate migration of Asian Indians from the Punjab region, the second most common religion in the CAITS sample is not Islam, as we had expected, but Sikhism. Sikhs comprise no more than 2% of the Asian Indian population but comprise 19% of the CAITS interviewees. Conversely, more than 11% of India's population is either Sunni or Shia (Muslim) (Turner, 1999), but Muslims comprise only 6% of the CAITS sample. The over-representation of Sikhs in this sample is particularly significant given their adamant opposition to the use of tobacco. For India's traditional organized religions, the women appear consistently but slightly more adherent than the men. The men are more likely to be agnostic or atheistic.

Table 2.26 Distribution of California Asian Indians According to Religious Affiliation, by Gender

Religion	Female %	Male %	Total %
Hinduism	61.4 [58.6,64.1]	56.2 [53.5,58.7]	58.7 [56.8,60.5]
Islam	6.7 [5.4,8.2]	4.9 [3.9,6.1]	5.7 [4.9,6.7]
Jainism	3.0 [2.2,4.1]	2.6 [1.9,3.6]	2.8 [2.2,3.5]
Sikhism	19.4 [17.1,21.8]	19.2 [17.2,21.3]	19.3 [17.8,20.9]
Buddhism	0.4 [0.2,0.8]	0.3 [0.1,0.9]	0.3 [0.2,0.6]
Zoroastrianism	0.5 [0.2,1.1]	0.2 [0.1,0.5]	0.3 [0.2,0.6]
Christianity	3.1 [2.2,4.2]	3.5 [2.7,4.5]	3.3 [2.7,4.0]
Judaism	0.1 [0.0,1.1]	0.1 [0.0,0.4]	0.1 [0.0,0.5]
Atheist but spiritual	0.0	0.7 [0.4,1.3]	0.4 [0.2,0.7]
Other	0.7 [0.4,1.3]	1.3 [0.8,2.1]	1.0 [0.7,1.5]
Non believer or atheist	3.2 [2.4,4.3]	9.0 [7.6,10.7]	6.2 [5.4,7.2]
Did not know	0.1 [0.0,1.0]	0.3 [0.1,0.9]	0.2 [0.1,0.6]
Refused to disclose	1.5 [1.0,2.3]	1.9 [1.3,2.8]	1.7 [1.3,2.3]
Total	100.0	100.0	100.0

Design-based $F(11.58, 37365.56) = 4.65$; $p < 0.01$
Cell entries are weighted percentages and 95% confidence intervals.

Composite Measures of Acculturation and Religiosity

More sophisticated assessments of acculturation might examine common factors that emerge from inductive statistical methods applied to a variety of cultural practices, including adherence to holidays, adherence to specific eating practices, views on intermarriage between cultures, etc. Principal components analysis is a way of capturing what is shared in common by measures attempting to gauge the same construct. Below we report the results of conducting a principal components analysis of several items measuring adherence to specific Asian Indian cultural practices.

Table 2.27 shows the factor loadings for the five variables contributing to the "Asian Indian observance" factor. The measure of internal reliability, the Cronbach's alpha, is .63, which indicates that the scale that includes the items contributing to that measure of internal reliability is nearly acceptable for research purposes (Nunnally, 1968). The item that loads most strongly

on this factor is the question about the frequency of use of one's native Asian Indian language at home, but frequency of eating Asian Indian food was almost equally important. Two items querying respondents about their comfort level at having a daughter or son marry a non-Indian were initially included but they did not load heavily on the same factor as the five variables below, and were therefore excluded.

Table 2.27 Factor Loadings for the Five Variables Contributing to the "Asian Indian Observance" Factor

Variables	Asian Indian observance factor
Do you observe the traditional holidays that are important in your culture and religion?	0.53
How often do you speak your native Indian language at home?	0.72
How often read Indian newspapers, magazines, books?	0.63
How often do you contact family members and friends in India?	0.65
How often do you eat Indian food?	0.69
Cronbach's alpha = .63	

Table 2.28 shows the mean Asian Indian observance factor scores for different levels of self-assessed acculturation. As expected, degree of observance of Asian Indian traditions was inversely and linearly related to self-assessed acculturation. What this means is that a summary index of the various measures contributing to observance of Asian Indian traditions correlates with self-described acculturation such that the higher the index, the lower the degree of acculturation to the U.S. The mean level of this index for any level of self-described acculturation is significantly different from the mean level of this index for any other level, thereby confirming the validity of the self-described acculturation question.

Table 2.28 Degree of Observance of Asian Indian Traditions, by Self-assessed Acculturation

Self-assessed cultural identity	Mean Indian observance factor score	95% confidence intervals
Full Indian	0.29	[0.25, 0.32]
Indian first, American second	0.12	[0.07, 0.17]
Blend Indian and American	-0.08	[-0.12, -0.04]
American first, Indian second	-0.57	[-0.69, -0.45]
Full American	-0.68	[-0.85, -0.52]
* beta coefficient $t(3087) = -18.95$; $p < .0001$, after controlling for sex, age, and education		

Table 2.29 shows the factor loadings for the three variables contributing to the "religiosity" factor. The measure of internal reliability, the Cronbach's alpha, is .63, indicating reasonably good internal reliability. The item that best defines this factor is the statement, "I believe that I am a religious person," although the other two items load on the factor almost equally well.

Table 2.29 Factor Loadings for the Three Variables Contributing to the "Religiosity" Factor

Variables	Religiosity factor
My spiritual beliefs are the foundation of my approach to life.	0.56
I believe that I am a religious person.	0.64
I observe the traditional holidays that are important in my culture and religion.	0.52
Cronbach's alpha =.63	

The important thing to note in Table 2.30 is that self-reported religiosity appears to be a characteristic of complete identification with one of the mono-cultural extremes–either full-fledged Asian Indian or full-fledged American. Cultural practices and religious practices are often intertwined. Because western culture has its roots in the Judeo-Christian tradition, many secular practices, such as taking work off on Sundays but working on Fridays and Saturdays, will challenge the equanimity of Asian Indian Muslims, who like to go to temple on Fridays. Because religion is usually a matter of belief rather than of logic, it is less amenable to compromise than is, say, culturally-appropriate business practices. A conflict likely to arise in acculturation is in accepting western behavioral practices, such as women not wearing a veil, which may conflict with religious beliefs that married women should always cover their face and hair. It should be no surprise that one way to resolve this dilemma when new cultural practices clash with traditional religious beliefs is simply to be less religious. Part of becoming fully acculturated is learning what secular practices can be legitimately disregarded on religious grounds and which ones apply to everyone regardless of religious affiliation. For drivers' licenses in the U.S., all adult women, married or not, must allow their face to be photographed, even if they are devout Muslims. After an individual has fully transitioned to being a full-fledged "American," fewer compromises of religious practices and beliefs may be necessary, and religiosity may once again be more extreme (and potentially more protective against tobacco use).

Table 2.30 shows the mean factor scores for different levels of self-assessed acculturation.

Table 2.30 Mean "Religiosity" Scores for Different Levels of Self-assessed Acculturation

Self-assessed cultural identity	Mean religiosity	95% confidence intervals
Full Indian	0.26	[0.14, 0.37]
Indian first, American second	0.04	[-0.08, 0.17]
Blend Indian and American	-0.10	[-0.17, -.02]
American first, Indian second	-0.19	[-0.44, 0.05]
Full American	0.21	[-0.08, 0.51]
* beta coefficient t(2778) = - 4.62; p < .0001, controlling for sex, age and education		

An even stronger association with religiosity was observed for educational attainment. Table 2.31 shows that educational attainment is strongly and inversely related to religiosity, a finding that is consistent with other literature relating educational attainment to religious adherence involving established, conservative churches (Darnell et al., 2004). Reflecting a uniformly high level of educational attainment for most respondents, whatever their acculturation level, no significant relationship was observed between their self-assessed acculturation level and their educational attainment (design-based F(15.66, 48800) = 0.90; p = .5674) (means not shown).

Table 2.31 Mean "Religiosity" Scores for Different Levels of Educational Attainment

Educational attainment	Mean religiosity	95% confidence intervals
Less than high school	0.93	[0.77, 1.10]
High school degree	0.39	[0.17, 0.62]
Some college	0.14	[-0.06, 0.34]
College degree	0.03	[-0.06, 0.13]
Graduate /professional education	- 0.20	[-0.28, -0.12]
* beta coefficient t(2778) = - 8.64; p < .0001, controlling for sex, age, and self-assessed acculturation level		

Conclusions

When examining key indicators of adherence to cultural norms, such as language, religion and cultural self-identification, California Asian Indian men are consistently more acculturated to American practices than Asian Indian women, but not strikingly so. Duration of time spent in the U.S. was generally associated with increasing acculturation to U.S. social norms and cultural practices, which partly explained observed sex differences, because Asian Indian women on average had spent less time in the U.S. than Asian Indian men.

The use of a question, "Were you born in the U.S.?" has been used in past research (e.g., Baluja et al., 2004) as an expedient way to assess acculturation to U.S. social norms and cultural practices. Inasmuch as 12% of the present sample reported being born outside of the U.S. in a British Commonwealth or other "western" country, such a question would be misleading because sojourning in other Anglophone countries such as the U.K., Canada or Australia would afford some of the same exposure to U.S. social norms and practices as they would have been exposed to had they been born in the U.S.

A survey question that asked respondents to report their own judgment about whether they felt more "American" or more "Indian" was found to be empirically related to a composite of indicators including observance of Asian Indian holidays, preference for eating Asian Indian food, preferring to speak a native Asian Indian language in the home, and preference to read Asian Indian newspapers, magazines. This provides important validation that self-assessed acculturation may be as useful as collecting information on language preference, dietary preference, observance of ethnically-specific holidays, etc. Other indicators, such as religiosity, turned out to be nonlinearly related to other measures of acculturation, notably degree of cultural identification as "American." If religiosity is an important protective factor, the mere fact of adopting new social norms and cultural practices possibly at variance with the social norms and cultural practices prescribed by one's religion could compromise adherence to the religion and thereby undermine the potential for religiosity to protect the individual from becoming a regular tobacco user.

Chapter 3 Epidemiology of Tobacco Use Among Asian Indians in California

- Key findings
- What is already known about Asian Indian tobacco use.
- Conventional tobacco use among Asian Indians, by gender.
- Asian Indian-specific tobacco use among Asian Indians, by gender.

Key Findings

- Asian Indian residents in California have enviably low rates of current tobacco use, whether assessed as conventional tobacco use, such as cigarette smoking, or assessed as Indian-specific tobacco use, such as bidis smoking.
- These low rates of current tobacco use do not mean that they have not ever been exposed to tobacco use. In fact, the majority of both Asian Indian men and Asian Indian women report ever use of tobacco, but more often as Indian-specific tobacco use.
- In most comparisons, Asian Indian women report lower rates of ever use and current use of tobacco than their male counterparts.
- While relapse rates for Asian Indian smokers trying to quit are high, consistent with relapse rates reported for Americans in general, Asian Indian ever smokers appear to have higher rates of long-term abstinence. Among those who continue to smoke, they do so reluctantly and most state an interest in quitting.
- Only one sixth of Asian Indian ever smokers say that they prefer a quit smoking counselor who speaks their native language.
- In stark contrast to bidi tobacco use in India, bidi tobacco use among California Asian Indian women is nonexistent and uncommon in California Asian Indian men. By contrast, ever use of cigars is relatively high among Asian Indians in California but is rare in India. The most parsimonious explanation for these differences in use of tobacco products is the relative availability of these products in the U.S. and India, but associations of bidis with lower social class status and cigars with entrepreneurship may also explaining these contrasting patterns between India and the U.S.

What is Already Known About Asian Indian Tobacco Use

The World Health Organization (WHO) who in its tobacco control profiles of various countries, reports that current adult smoking prevalence (measured in 1998-99) in India averaged 29.4% for adult men and 2.5% for adult women, both of which were lower than corresponding rates for most other Asian countries, but rates that were not much better than they had been a decade earlier. Although not national in scope, the two large scale state-specific surveys reported by Chaudry et al. (2002) and summarized in Chapter 1 seemed to indicate substantially higher prevalence rates of overall tobacco use (smoking and smokeless tobacco use) for both men and women than are suggested by the WHO figures. Surveys conducted of immigrant Southern Asians in the U.K. and in Canada, both of which were described in Chapter 1, indicated somewhat lower levels of tobacco use than among native born residents of those countries but rates nonetheless high enough to generate concern among public health officials. There appears to be a need for more comprehensive information about tobacco use among California residents of Asian Indian origin.

Conventional Tobacco Use Among Asian Indians Living in California

The following tables describe tobacco use among Asian Indians living in California as of June-September 2004. The data from respondents who reported living in the U.S. at the time of the U.S. Census in April 2000 have been weighted to correct for differential non-response by age, by gender, and by TCS region (see Appendix 7 for more detail). The weighting was done to reflect the differences in the distribution of respondents in the final sample as compared to what was expected on the basis of the demographic characteristics of Asian Indians documented in the 2000 U.S. Census.

The first set of descriptive statistics concerning Asian Indian tobacco use addressed their use of tobacco products that are commonly used in the U.S. These descriptive statistics concern lifetime experience, current use, and cessation.

Table 3.1 shows the prevalence of current smoking, as defined by CDC (e.g., CDC, 2000). To determine current cigarette smoking, respondents were asked, **"Have you ever smoked at least 100 cigarettes in your entire life?"** and **"Do you now smoke cigarettes every day, some days, or not at all?"** Current smokers were defined as those who reported having smoked >100 cigarettes during their lives and who currently smoked every day or some days. Current smoking rates are considerably lower among Asian Indians in California than in adults nationally (e.g., Husten et al., 2004). The most recent national prevalence estimate for women is 20% and for men is 25.2%. Bombard and associates (2004) reported that California-specific smoking rates were even lower: 13.3% for California women and 19.7% for California men, but still quite a bit higher than the rates reported for Asian Indian women and men in Table 3.1.

Table 3.1 Prevalence of Current Tobacco Use Among Californians of Asian Indian Ancestry by Gender*

	Female %	Male %	Total %
Not current smoker	98.1 [97.1,98.7]	91.3 [89.6,92.7]	94.5 [93.6,95.4]
Current smoker	1.9 [1.3,2.9]	8.7 [7.3,10.4]	5.5 [4.6,6.4]

*Note. Current smoker defined as having smoked at least 100 cigarettes and smoked some or all days in past 30 days.
Design-based $F(1, 3222) = 55.42$; $p < 0.0001$
Cell entries are weighted percentages and 95% confidence intervals.

Table 3.2 shows the weighted prevalence estimate of California Asian Indian tobacco use in response to the question, **"Have you smoked at least 100 cigarettes in your entire life?,"** by gender. Overall, Asian Indian women living in California report considerably less experience with cigarettes in their lifetimes than do Asian Indian men (4.1% [95% CI = 3.1 – 5.3] versus 24.7% [95% CI = 22.5 – 26.9]). Both rates are considerably lower than lifetime rates observed nationally.

Table 3.2 Prevalence of Lifetime Cigarette Use (at Least 100 Cigarettes Smoked) Among Californians of Asian Indian Ancestry, by Gender

Have you smoked at least 100 cigarettes in your life?	Gender		
	Female %	Male %	Total %
No	95.9 [94.7,96.9]	75.3 [73.1,77.5]	85.2 [83.9,86.5]
Yes	4.1 [3.1,5.3]	24.7 [22.5,26.9]	14.8 [13.5,16.1]
Total	100.0	100.0	100.0

Design-based F(1, 3224) = 221.09; p < 0.01
Cell entries are weighted percentages and 95% confidence intervals.

Table 3.3 shows the weighted prevalence estimate of California Asian Indian tobacco use in response to the question, **"Do you now smoke cigarettes every day, some days, or not at all?"** For the few Asian Indian women who had smoked at least 100 cigarettes in a lifetime, their overall current smoking status did not differ significantly from that of corresponding Asian Indian men. Both sexes reported higher rates of current abstinence than is commonly observed in ever smokers in the U.S., with over 60% of ever-smoking males reporting current abstinence (64.5%, [95% CI = 59.3 – 69.4]).

Table 3.3 Current Smoking Status* Among California Asian Indian Ever-smokers, by Gender

Frequency of smoking*	Gender		
	Female %	Male %	Total %
Everyday	27.6 [16.9,41.6]	21.3 [17.2,25.9]	22.1 [18.2,26.5]
Some days	19.4 [10.6,32.8]	14.2 [10.8,18.6]	14.9 [11.6,19.0]
No days (abstinent)	53.0 [39.3,66.1]	64.5 [59.3,69.4]	63.0 [58.1,67.6]
Total	100.0	100.0	100.0

Design-based F(2.00,1013.27) = 1.25; p = 0.2875
*Note. Asked only of those respondents who reported having smoked 100 cigarettes in lifetime.
Cell entries are weighted percentages and 95% confidence intervals.

Table 3.4 shows the weighted prevalence estimate of California Asian Indian tobacco use in response to the question, **"About how old were you when you smoked your first whole cigarette?"** The results show that if Asian Indians do pick up the smoking habit, they do so at an age later than has been observed for other U.S. ethnic groups. Less than 40% of Asian Indian smokers reported having their first whole cigarette before the age of 18 (38.3%; 95% CI = 33.7,43.3). By contrast, historically it has been the case in the U.S. that if an American youth reached college age (18-21 years) without picking up the smoking habit, chances were good that the youth would remain smoke-free for life (Chassin et al., 1996). This does not appear to be the case with Asian Indians, is not true of California's Chinese Americans (Chen et al., 1999) and may no longer be true of other California youth (Trinidad et al., 2004). If Asian Indians become smokers, it is typically during the college years (18-21-years-old) when they are most likely to start (45.2%; 95% CI = 40.4 - 50.0).

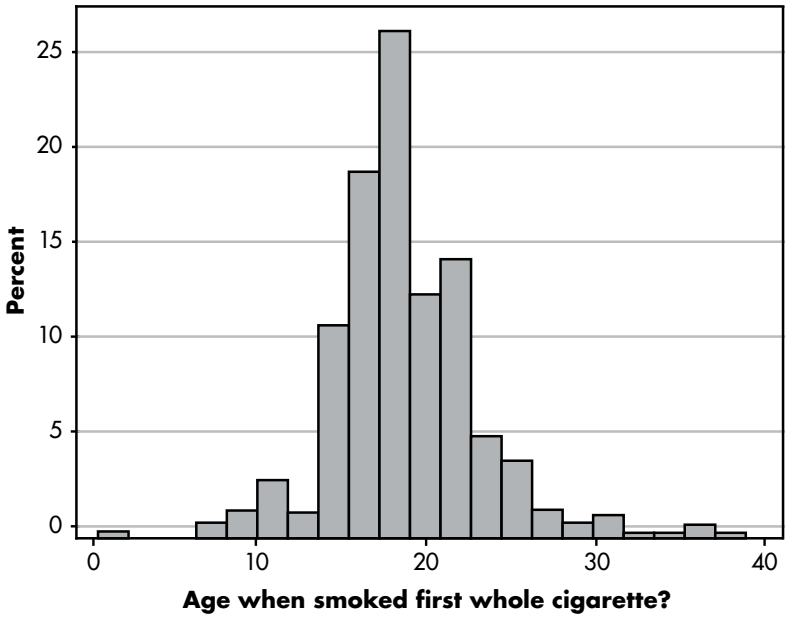
Table 3.4 Age When First Smoked Whole Cigarette*

Age categories	California Asian Indian Tobacco Survey			2002 California Adult Tobacco Survey	
	Female %	Male %	Total %	Female %	Male %
7-13 years old	3.2 [0.8,11.8]	7.2 [4.9,10.5]	6.7 [4.6,9.6]	19.3 [17.9,20.8]	25.6 [24.0,27.3]
14-17 years old	35.9 [23.8,50.1]	31.0 [26.3,36.2]	31.7 [27.2,36.5]	43.0 [41.1,44.9]	43.7 [41.8,45.5]
18-21 years old	42.5 [29.8,56.3]	45.6 [40.5,50.8]	45.2 [40.4,50.0]	27.4 [25.6,29.2]	23.2 [21.6,24.9]
More than 21 years old	18.4 [10.4,30.6]	16.2 [12.8,20.2]	16.5 [13.3,20.2]	10.3 [9.0,11.7]	7.5 [6.5,8.6]
Total	100.0	100.0	100.0	100.0	100.0

Design-based F(2.97, 1500.22) = 0.60; p = 0.6132 (California Asian Indian Tobacco Survey).
Design-based F(2.95, 41020.69) = 13.57; p < .0001 (2002 California Tobacco Survey).
*Note. Asked only of those respondents who reported having smoked 100+ cigarettes in lifetime.
Cell entries are weighted percentages and 95% confidence intervals.

Figure 3.1 shows the distribution of responses to the question, **"About how old were you when you smoked your first whole cigarette?"** The significance of this question is that age of onset has been shown to be inversely related to the difficulty in quitting later–the earlier one starts, the more difficult it is later in life to quit, when there is greater motivation to quit (Breslau and Peterson, 1996).

Figure 3.1 Age When First Smoked Whole Cigarette



Furthermore, as Table 3.5 illustrates, the onset of regular smoking is even more delayed relative to the onset of regular smoking among other Californians. Table 3.4 shows the weighted prevalence estimates of California Asian Indian tobacco use in response to the question, **"About how old were you when you first started smoking cigarettes fairly regularly?"** and the corresponding estimates for Californians in general. More than 80% of Asian Indian smokers but less than 55% of other Californian smokers wait until age 18 before beginning to smoke regularly (83.8%, 95% CI = 79.4,87.5).

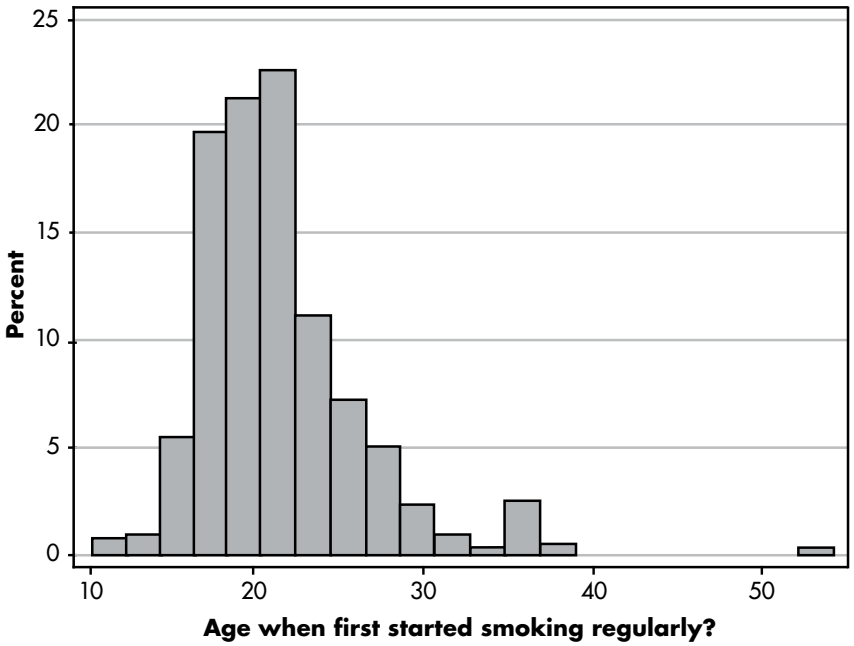
Table 3.5 Age When Started Smoking Regularly*

Age categories	California Asian Indian Tobacco Survey			2002 California Adult Tobacco Survey	
	Female %	Male %	Total %	Female %	Male %
7-13 years old	0.0 [0.4,2.5]	1.0 [0.4,2.1]	0.9 [0.35,2.1]	7.4 [6.4,8.6]	9.9 [8.6,11.3]
14-17 years old	15.7 [7.9,29.0]	15.2 [11.4,20.1]	15.3 [11.7,19.8]	34.0 32.0,36.1	38.4 [36.3,40.6]
18-21 years old	54.2 [39.9,67.8]	43.1 [37.7,48.6]	44.6 [39.5,49.8]	38.7 [36.5,40.9]	37.7 [35.6,39.9]
More than 21 years old	30.1 [19.0,44.1]	40.7 [35.4,46.2]	39.2 [34.4,44.3]	19.9 [17.8,22.1]	14.0 [12.6.15.5]
Total	100.0	100.0	100.0	100.0	100.0

Design-based F(2.89,1281.55) = 1.07; p = 0.3605 (California Asian Indian Tobacco Survey).
Design-based F(2.95, 30245.1) = 10.87; p < .0001 (2002 California Tobacco Survey).
*Note. Asked only of those respondents who reported having smoked 100-plus cigarettes in lifetime.
Cell entries are weighted percentages and 95% confidence intervals.

Figure 3.2 shows the distribution of responses to the question, **"About how old were you when you first started smoking cigarettes fairly regularly?"** Mere experimentation with cigarettes, if it fails to result in regular smoking, appears to be of little health consequence. The importance of preventing early experimentation with cigarettes is not the direct harm that might emanate from exposure to cigarettes at that age, but rather the greatly increased likelihood that early experimentation will lead to adoption of regular smoking. The distinction, therefore, between first cigarette and first "regular" smoking is important. In any case, the median age of onset of regular smoking appears to be after age 20, which is quite a bit later than the 14-15 years typically observed among native born U.S. residents.

Figure 3.2 Age When Started Smoking Regularly



Next, Table 3.6 shows the weighted prevalence estimate of California Asian Indian tobacco use in response to the question, **"Have you ever smoked daily for six months or more?"** Remarkably, nearly a third of Asian Indian smokers (33.1%; 95% CI = 28.0 – 38.6) reported never having smoked daily for six months or more. It appears that non-daily smoking is relatively common among California Asian Indian smokers. Non-daily smoking used to be considered a relative rare phenomenon, but at least in the U.S. the decreasing prevalence of smoking has been accompanied by a concurrent reduction in the frequency of smoking by those still smoking, with a concomitant increase in the proportion of "intermittent" or non-daily smokers. Non-daily smokers, in turn, are more likely to quit smoking for good than daily smokers.

Table 3.6 Prevalence 100 Cigarette Smokers Who Have Smoked Daily for Six Months or More*

	Gender		
Have smoked daily for six months or more	**Female %**	**Male %**	**Total %**
No	38.7 [24.8,54.8]	32.3 [26.9,38.2]	33.1 [28.0,38.6]
Yes	61.3 [45.2,75.2]	67.7 [61.8,73.1]	66.9 [61.4,72.0]
Total	100.0	100.0	100.0

Design-based F(1, 402) = 0.63; p = 0.4292
*Note. Asked only of those respondents who reported having smoked 100 cigarettes in lifetime.
Cell entries are weighted percentages and 95% confidence intervals.

Table 3.7 shows the weighted prevalence estimates of California Asian Indian tobacco use in response to the question, **"How long has it been since you smoked on a daily basis?"** The mean sex difference in latency from last time one smoked daily was significant. For those California Asian Indian women reporting that they had stopped smoking daily, the latency averaged 7.84 years (95% CI = 5.63 – 10.05); for corresponding men, the latency averaged 11.27 years (95% CI = 9.96 – 12.57).

Table 3.7 Length of Time Since Last Smoked Daily*

	Gender		
Length of time since last smoked daily	**Female %**	**Male %**	**Total %**
Less than 1 year	13.8 [5.1,32.5]	9.0 [5.8,13.6]	9.5 [6.4,13.9]
1-3 years	21.6 [9.0,43.6]	18.5 [13.6,24.7]	18.8 [14.1,24.7]
4-9 years	38.6 [20.7,60.1]	31.0 [25.0,37.7]	31.8 [26.1,38.2]
10-19 years	13.3 [4.0,35.8]	20.7 [16.1,26.3]	19.9 [15.5,25.2]
20 or more years	12.7 [3.8,34.6]	20.8 [15.9,26.7]	19.9 [15.3,25.5]
Total	100.0	100.0	100.0

Design-based F(3.96, 1100.61) = 0.54; p = 0.7008
*Note. This question asked only of those reporting having ever smoked daily for six months or more.
Cell entries are weighted percentages and 95% confidence intervals.

Table 3.8 shows the weighted prevalence estimate of California Asian Indian tobacco use in response to the question, **"Did you smoke any cigarettes during the past 30 days?"** The answers suggest, in contrast to reports by Chaudry et al., (2002) about Asian Indian smokers, that California Asian Indians who ever smoked have high abstinence rates later. It can be expected, among native born U.S. residents that about half of those who have ever smoked 100 cigarettes can be expected to be able to quit for good. The 53-64% abstinence rates reported in Table 3.7 are more impressive than what is observed among native-born U.S. resident ever smokers.

Table 3.8 Prevalence Among 100 Cigarette Smokers of Any Smoking in Last 30 days.*

	Gender		
Prevalence of smoking in last 30 days	**Female %**	**Male %**	**Total %**
No	53.0 [39.3,66.1]	64.5 [59.3,69.4]	63.0 [58.1,67.6]
Yes	47.0 [33.9,60.7]	35.5 [30.6,40.7]	37.0 [32.4,41.9]
Total	100.0	100.0	100.0

Design-based F(1, 507) = 2.55; p = 0.1109
*Note. Question asked only of those respondents who had smoked at least 100 cigarettes in lifetime.
Cell entries are weighted percentages and 95% confidence intervals.

Table 3.9 shows the weighted prevalence estimate of California Asian Indian tobacco use in response to the question, **"On how many of the past 30 days did you smoke cigarettes?"** Even among the few CAITS interviewees who did report current smoking, the frequency of smoking is impressively low. In fact none of the women who smoked and only 8.7% of the men who smoked did so on an everyday basis. In general, California Asian Indians who smoke do so infrequently. These results contrast greatly with those results previously reviewed about smokers in India and native born smokers in the U.S.

Table 3.9 On How Many of the Last 30 Days Did You Smoke?*

	Gender		
Number of days of last 30 when you smoked	**Female %**	**Male %**	**Total %**
1 to 2 days	29.0 [8.6,64.0]	27.6 [16.0,43.2]	27.8 17.1,41.9]
3 to 5 days	11.3 [1.5,51.9]	24.2 [12.9,40.9]	21.8 [11.9, 36.4]
6 to 14 days	31.3 [10.7,63.5]	14.7 [7.6,26.7]	17.9 [10.3,29.4]
15 to 29 days	28.4 [7.3,66.7]	24.8 [13.3,41.5]	25.5 [14.6,40.7]
30 days	0.0	8.7 [2.6,25.1	7.0 2.1,20.8]
Total	100.0	100.0	100.0

Design-based F(3.87, 642.15) = 0.57; p = 0.6813
*Note. Asked only of those who reported having smoked in last 30 days.
Cell entries are weighted percentages and 95% confidence intervals.

The weighted prevalence estimate was obtained from California Asian Indian tobacco users in response to the question, **"During the past 30 days, on the days that you did smoke, about how many cigarettes did you usually smoke per day?"** The number of cigarettes smoked per day reported by the few Asian Indians currently smoking was lower than what is generally reported for American smokers. This is particularly true for the women smokers, none of whom smoked more than three cigarettes per day on the days they smoked. The men showed a greater range (1-20 cigarettes per day), but their mean number of cigarettes per day (3.93 cigarettes per day; 95% CI = 2.30 – 5.56), while higher than that reported by the women smokers (1.48 cigarettes per day; 95% CI = 1.04 – 1.93), was still low compared to the number of cigarettes usually reported by adult smokers in the U.S.

Quitting and Assessment of Addiction

Figure 3.3 shows the distribution of California Asian Indian tobacco use in response to the question, **"On the days you smoke, how soon after you awake in the morning do you usually smoke your first cigarette?"** This question is the single most common question used to assess how addicted a smoker is to the use of tobacco. As is common with smokers, many of the California Asian Indian smokers report needing a cigarette within one hour of awakening. If California Asian Indians smoke less than members of other ethnic groups, it apparently is not because Asian Indian smokers are less addicted.

Figure 3.3 Minutes Before Needing to Smoke After Awakening

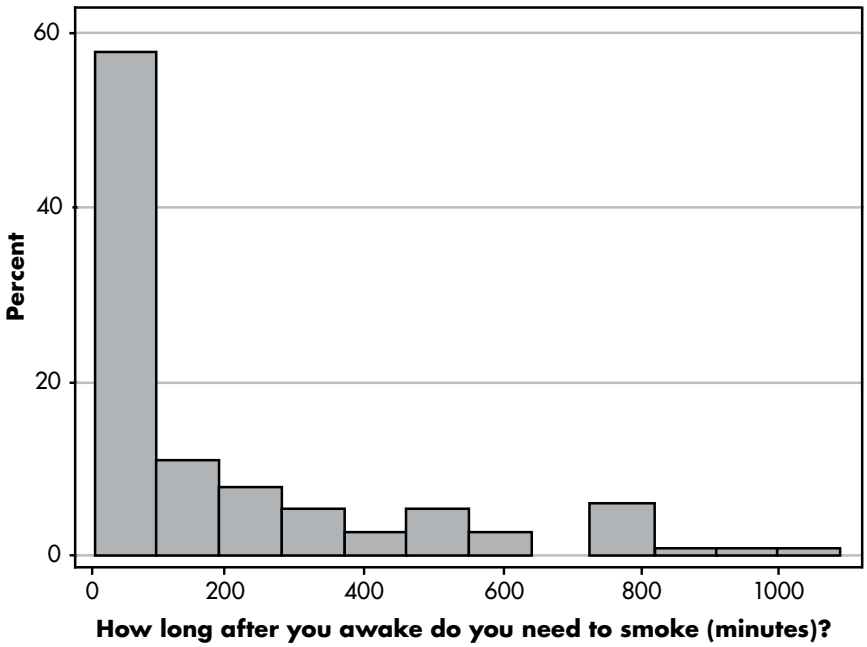


Table 3.10 shows the weighted prevalence estimate of California Asian Indian tobacco use in response to the question, **"About how long has it been since you last smoked cigarettes regularly?"** Where relapse is common, the prevalence would be highest in the "less than one year" category. Generally, among Asian Indians, most smokers who have given up their habit did so more than three years ago. The emerging picture of smoking in this immigrant community is one of late susceptibility to onset, low level of use when using and relatively easy cessation and maintenance of abstinence early in adulthood.

Table 3.10 How Long Since You Last Smoked Regularly?*

	Gender		
How long since you last smoked regularly?	**Female %**	**Male %**	**Total %**
Less than 1 year	10.4 [2.4,34.9]	9.5 [6.1,14.5]	9.6 [6.3,14.4]
1-3 years	13.9 [5.6,30.3]	16.3 [11.7,22.2]	16.0 [11.7,21.5]
4-9 years	45.9 [27.7,65.2]	29.9 [24.2,36.2]	31.6 [26.1,37.7]
10-19 years	23.2 [11.1,42.4]	21.1 [16.6,26.5]	21.4 [17.0,26.5]
20 or more years	6.6 [1.4,25.4]	23.2 [18.3,29.0]	21.4 [16.9,26.7]
Total	100.0	100.0	100.0

Design-based F(3.82, 1161.22) = 1.19; p = 0.3121
*Note. This question asked only of those reporting having smoked at least 100 cigarettes in lifetime and who are now not smoking. Cell entries are weighted percentages and 95% confidence intervals.

As observed in Table 3.10, the results described in Table 3.11 reinforce the impression that California Asian Indians who once smoked are uncommonly successful in refraining from smoking again–even one puff–for three years, once they decide to quit. Table 3.11 shows the weighted prevalence estimate of California Asian Indian tobacco use in response to the question, **"When did you last smoke or have a puff on a cigarette?"**

Table 3.11 When Did You Last Smoke or Have a Puff on a Cigarette?*

When did you last smoke or have a puff?	Gender		
	Female %	Male %	Total %
Less than 1 year	25.2 [11.8,45.9]	22.1 [17.0,28.1]	22.4 [17.6,28.2]
1-3 years	23.4 [11.7,41.4]	18.8 [14.1,24.7]	19.3 [14.8,24.8]
4-9 years	28.0 [14.4,47.2]	24.7 [19.7,30.4]	25.0 [20.3,30.5]
10-19 years	19.1 [9.0,36.1]	16.0 [12.2,20.7]	16.4 [12.7,20.8]
20 or more years	4.4 [0.6,25.4]	18.4 [14.2,23.5]	16.9 [13.0,21.6]
Total	100.0	100.0	100.0

Design-based F(3.91, 1287.25) = 0.86; p = 0.4882
*Note. Question asked only of those who had smoked at least 100 cigarettes in lifetime and who now no longer smoked.
Cell entries are weighted percentages and 95% confidence intervals.

Table 3.12 shows the weighted prevalence estimate of California Asian Indian tobacco use in response to the question, **"During the past 12 months, have you stopped smoking for one day or longer because you were trying to quit smoking?"** Obviously, this question was asked only of those few CAITS interviewees who were still smoking. One might have thought that only the most hard core addicted tobacco user would be left among the few smokers in this community but the results suggest otherwise, namely that nearly two-thirds of the few remaining smokers reported that they had, indeed, tried to quit smoking for one day or longer in the last 12 months. If a large, distinct community could ever imaginably be completely smoke-free, this community of California Asian Indians seems eligible.

Table 3.12 Stopped Smoking for One Day or Longer in Last 12 Months?*

Stopped smoking for one day or longer in last 12 months?	Gender		
	Female %	Male %	Total %
No	31.3 [15.8,52.4]	38.7 [30.1,48.0]	37.4 [29.6,45.8]
Yes	68.7 [47.6,84.2]	61.3 [52.0,69.9]	62.6 [54.2,70.4]
Total	100.0	100.0	100.0

Design-based F(1, 169) = 0.45; p = 0.5035
*Note. Asked only of those who said that they currently smoked at least some days in last month.
Cell entries are weighted percentages and 95% confidence intervals.

Table 3.13 shows the weighted prevalence estimate of California Asian Indian tobacco use in response to the question, **"During the past 12 months, on the days you did not smoke, was this because you were trying to quit smoking?"** In contrast to Table 3.11, where the respondents were those who currently smoked, the respondents queried for the data in Table 3.13 were those who were currently NOT smoking, but who had smoked in the last 30 days. The sample sizes were small and the confidence intervals so large that there is little to conclude from the data.

Table 3.13 During the Past 12 Months, on the Days You Did Not Smoke, was This Because You Were Trying to Quit Smoking?*

	Gender		
	Female %	**Male %**	**Total %**
Yes	79.1 [13.3,98.9]	36.0 [11.5,70.8]	45.0 [16.9,76.7]
No	20.9 [1.1,86.7]	64.0 [29.2,88.5]	55.0 [23.3,83.1]
Total	100.0	100.0	100.0

Design-based F(1, 12) = 1.6361; p = 0.2250
*Note. Asked only of those who said that they were not currently smoking but had smoked in the last 30 days.
Cell entries are weighted percentages and 95% confidence intervals.

Figure 3.4 shows the weighted prevalence estimate of California Asian Indian tobacco use in response to the question, **"During your last attempt to quit, how long did you go without smoking a cigarette?"** When California Asian Indians quit smoking and then relapse, the relapse curve is similar to that seen in other communities of would-be ex-smokers.

Figure 3.4 Days Elapsed Without Smoking During Last Quit Attempt

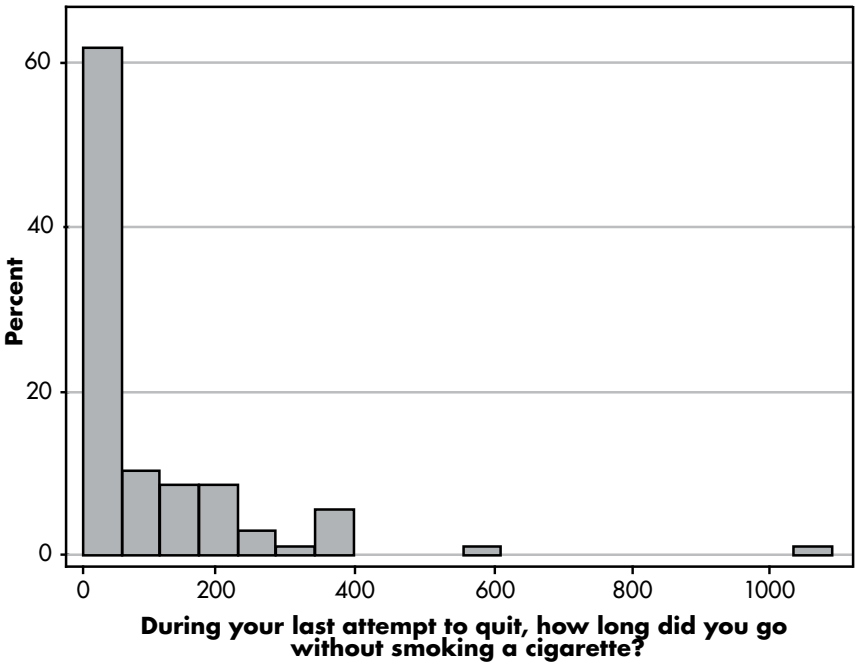


Table 3.14 shows the weighted prevalence estimate of California Asian Indian tobacco use in response to the question, **"Did you use medication such as patches, gum, or nasal spray to help you in this quit attempt?"** The typical first attempt at quitting smoking is to do so with no assistance, either from a counselor or with a nicotine adjunct, such as a nicotine patch or nasal spray. Given the ease with which many former Asian Indian smokers seem to quit their habit and maintain abstinence, it does not appear that they need to use assistance. Nonetheless, particularly for the women smokers, their non-use of the nicotine adjunct could be attributable to their ignorance about the proven efficacy of nicotine adjuncts to facilitate cessation. If so, there would be public health benefit in making them more aware of the availability of such adjuncts.

Table 3.14 Did You Use Medication such as Patches, Gum, or Nasal Spray to Help You in this Quit Attempt?*

	Gender		
	Female %	**Male %**	**Total %**
Yes	6.3 [0.8,34.3]	26.3 [17.2,38.0]	22.2 [14.6,32.3]
No	93.7 [65.7,99.2]	73.7 [62.0,82.8]	77.8 [67.7,85.4]
Total	100.0	100.0	100.0

Design-based F(1, 108) = 2.9610; p = 0.0882
*Note. Asked only of those who said that they were not currently smoking, had smoked in the last 30 days, and were trying to quit smoking.
Cell entries are weighted percentages and 95% confidence intervals.

Tables 3.15a-c show the weighted prevalence estimates of California Asian Indian tobacco use in response to several questions about methods used to assist the respondent in quitting his/her tobacco use habit. The general pattern is consistent with what was observed for use of nicotine adjuncts: most California Asian Indian smokers wishing to quit do not use any of the conventional forms of assistance usually available to help adults quit smoking. As seen in other communities, women are more agreeable to taking advantage of self-help materials than the men.

Table 3.15a Did You Use Counseling Advice in Your Quit Attempt?*

	Gender		
	Female %	**Male %**	**Total %**
Yes	6.3 [0.8,34.3]	10.3 [4.7,21.0]	9.5 [4.6,18.6]
No	93.7 [65.7,99.2]	89.7 [79.0,95.3]	90.5 [81.4,95.4]
Total	100.0	100.0	100.0

Design-based F(1, 108) = 0.2370; p = 0.6274
*Note. Asked only of those who said that they were not currently smoking, had smoked in the last 30 days, and were trying to quit smoking.
Cell entries are weighted percentages and 95% confidence intervals.

Table 3.15b Did You Use Any Self-help Materials in This Quit Attempt?*

	Gender		
	Female %	Male %	Total %
Yes	30.6 [12.8,56.9]	5.5 [2.5,11.6]	10.6 [5.7,18.8]
No	69.4 [43.1,87.2]	94.5 [88.4,97.5]	89.4 [81.2,94.3]
Total	100.0	100.0	100.0

Design-based F(1, 108) = 10.7257; p = 0.0014
*Note. Asked only of those who said that they were not currently smoking, had smoked in the last 30 days, and were trying to quit smoking.
Cell entries are weighted percentages and 95% confidence intervals.

Table 3.15c Did You Use the 1-800-NOBUTTS Toll-free Number in Your Quit Attempt?*

	Gender		
	Female %	Male %	Total %
Yes	15.2 [3.7,45.5]	8.1 [3.5,17.6]	9.6 [4.7,18.6]
No	80.3 [52.2,93.9]	87.2 [77.0,93.3]	85.8 [76.3,91.9]
No, because I did not know about it	4.4 [0.6,26.5]	4.7 [1.6,12.9]	4.6 [1.8,11.4]
Total	100.0	100.0	100.0

Design-based F(1.92, 207.17) = 0.3960; p = 0.6649
*Note. Asked only of those who said that they were not currently smoking, had smoked in the last 30 days, and were trying to quit smoking.
Cell entries are weighted percentages and 95% confidence intervals.

Table 3.16 shows the weighted prevalence estimate of California Asian Indian tobacco use in response to the question, **"If you could use a toll-free number to help you quit smoking, would you prefer to speak to someone in your native Indian language?"** There is little question that some (14-20%) would-be ex-smokers would prefer to speak to a counselor who understands some of the culturally intimate challenges typically faced by the Asian Indian trying to quit his/her tobacco use habit, such as how to protect oneself from the undesirable weight gain that typically accompanies smoking cessation. An expedient way to ensure such cultural sensitivity is to have on staff bilingual interviewers who can speak to the Asian Indian smoker in Hindi or, better yet, in his/her regional dialect.

Table 3.16 If You Could Use a Toll-free Number to Help You Quit Smoking, Would You Prefer to Speak to Someone in Your Native Indian Language?*

	Gender		
	Female %	Male %	Total %
Yes	14.5 [3.6,43.8]	19.5 [11.9,30.2]	18.5 [11.7,28.2]
No	73.8 [46.3,90.2]	76.7 [65.2,85.3]	76.2 [65.7,84.2]
I do not have a native Indian Language	11.7 [2.8,38.1]	3.8 [0.8,15.4]	5.3 [1.9,14.2]
Total	100.0	100.0	100.0

Design-based F(2.00, 205.90) = 0.7413; p = 0.4777
*Note. Asked only of those who said that they were not currently smoking, had smoked in the last 30 days and were trying to quit smoking.
Cell entries are weighted percentages and 95% confidence intervals.

Table 3.17 shows the weighted prevalence estimate of California Asian Indian tobacco use in response to the question, **"In what situation did you return to smoking?"** It is apparent that the physiological withdrawal from nicotine dependence is not as big a challenge in staying smoke-free as the more psychologically challenging task of coping with stressful situations, especially social situations, without relapsing. These results suggest some benefit to tailoring quit attempts to take place on weekends or holidays, when stress is typically reduced and social situations can be better managed or avoided.

Table 3.17 In What Situation Did You Return to Smoking?*

	Gender		
Situation	**Female %**	**Male %**	**Total %**
Stressful situation	28.7 [12.4,53.4]	29.8 [19.8,42.2]	29.6 [20.6,40.5]
Death or tragedy	0.0	0.9 [0.1,6.6]	0.7 [0.1,5.2]
Alcohol was served	0.0	1.2 [0.2,8.5]	1.0 [0.1,6.7]
Social situation	31.2 [12.8,58.4]	30.4 [20.4,42.6]	30.5 [21.3,41.6]
Irritable due to smoking withdrawal	6.3 [0.8,34.3]	5.9 [2.3,14.3]	6.0 [2.6,13.4]
For enjoyment	16.1 [4.9,41.6]	6.3 [2.6,14.6]	8.4 [4.1,16.4]
Other	17.7 [5.6,43.9]	25.5 [16.3,37.4]	23.8 [15.7,34.3]
Total	100.0	100.0	100.0

Design-basedF(5.78, 589.98) = 0.4159; p = 0.8627
*Note. Asked only of those who said that they were not currently smoking, had smoked in the last 30 days, and were trying to quit smoking
**Note. Interviewer probed for MOST IMPORTANT cause of relapse; categories are therefore mutually exclusive.
Cell entries are weighted percentages and 95% confidence intervals.

Of those who said that they were currently smoking, had smoked in the last 30 days, and had not made an attempt to quit smoking in last 12 months, the question was asked, **"In your whole life, have you ever made a serious attempt to quit smoking?"** Half of these respondents, split evenly between men and women, reported that yes, they had previously made at least one serious attempt at quitting smoking (50.2 percent; 95% CI = 37.5 – 62.80. It is safe to say that even in this small group of persistent smokers half have nonetheless tried to quit in the past and presumably will be interested in quitting some time in the future.

Figures 3.5 and 3.6, below, show the distribution of responses to the questions, **"How long have you been smoking since your last quit attempt?"** and **"Since you started smoking regularly, what is the longest time you have ever gone without smoking a cigarette?"** Both figures provide a gauge of how vulnerable to relapse the respondents are who currently smoke. As is generally true of adult smokers in the U.S., current Asian Indian smokers report their susceptibility to relapse, particularly shortly after a quit attempt.

Figure 3.5 Days Smoking since Last Quit Attempt

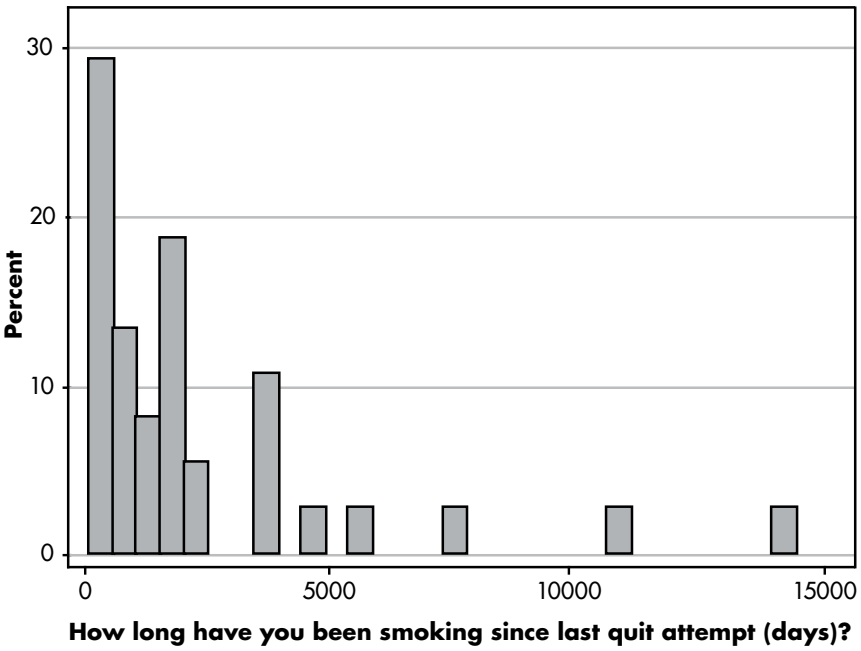


Figure 3.6 Longest Number of Days without Cigarette since Smoking Regularly

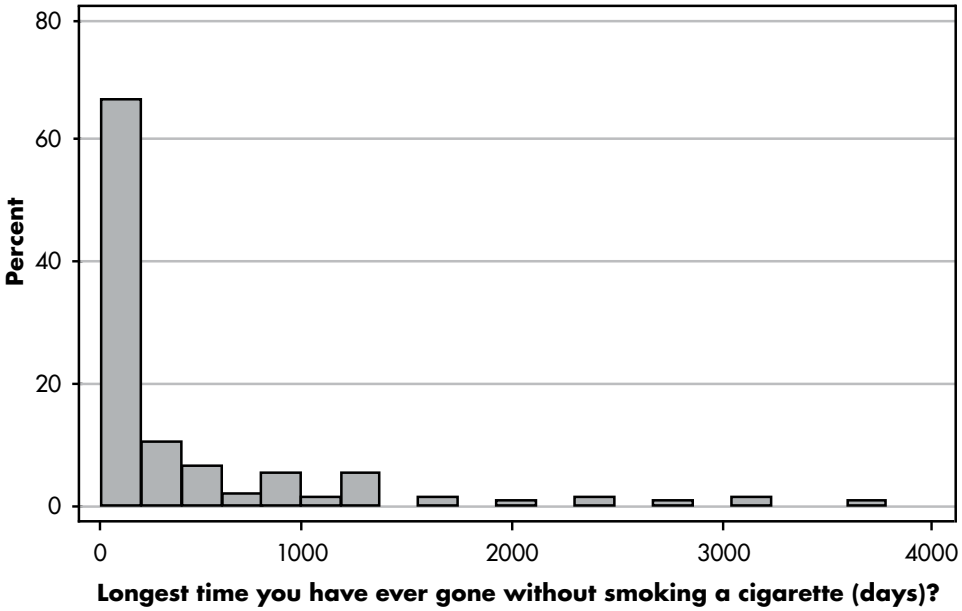


Table 3.18 shows the weighted prevalence estimate of California Asian Indian tobacco use in response to the question, **"Would you like to stop smoking?"** In the U.S. it is quite typical for a majority of smokers, when queried, to say that they would like to stop smoking. In India, according to Chaudry (2002), this is not quite so common. With respect to wanting to quit, then, California Asian Indian smokers more closely resemble U.S. smokers than they resemble Asian Indian smokers.

Table 3.18 Would You Like to Stop Smoking?*

	Gender		
	Female %	**Male %**	**Total %**
Yes	77.9 [57.1,90.3]	73.6 [63.5,81.7]	74.4 [65.4,81.6]
No	22.1 [9.7,42.9]	26.4 [18.3,36.5]	25.6 [18.4,34.6]
Total	100.0	100.0	100.0

Design-based F(1, 161) = 0.1822; p = 0.6700
*Note. Asked only of those who said that they were smoking every day or some days.
Cell entries are weighted percentages and 95% confidence intervals.

Table 3.19 shows the weighted prevalence estimate of California Asian Indian tobacco use in response to the question, **"Are you thinking about quitting smoking in the next six months?"** Few as they are, the California Asian Indians who currently smoke are generally interested in quitting their smoking habit, men and women.

Table 3.19 Are You Thinking about Quitting Smoking in the Next Six Months?*

	Gender		
	Female %	**Male %**	**Total %**
Yes	71.6 [49.9,86.5]	61.6 [51.6,70.7]	63.4 [54.4,71.6]
No	28.4 [13.5,50.1]	38.4 [29.3,48.4]	36.6 [28.4,45.6]
Total	100.0	100.0	100.0

Design-based F(1, 160) = 0.7794; p = 0.3787
*Note. Asked only of those who said that they were smoking every day or some days.
Cell entries are weighted percentages and 95% confidence intervals.

Respondents were asked, **"Do you think it is likely or unlikely that you will return to smoking in the next 12 months?"** Almost all Asian Indian ever smokers, both men and women, who were now abstinent believed that it was unlikely they would return to smoking in the next 12 months (87 percent; 95% CI = 84.1 – 92.0). These findings are further supported by the fact that there are high long-term abstinence rates for this population.

Respondents were also asked, **"Do you think you will smoke a cigarette in the next year?"** Both men (86.2 percent; 95% CI = 84.1 – 88.1) and women (93.4 percent; 95% CI = 91.9 – 94.7) who had ever smoked and were now abstinent, but especially the women, were adamant that they would not smoke even a single cigarette in the next year.

Table 3.20 shows weighted percentages of women and men who checked the following choices as to where they usually purchased their cigarettes. Respondents were able to check more than one answer because they were asked to check "all that apply." California Asian Indian men and women who smoke are most likely to purchase their cigarettes at convenience stores, but supermarkets, liquor/drug stores and tobacco discount stores are also popular. Tobacco control efforts targeted to convenience stores would have disproportionate impact, given their popularity as vendors of cigarettes.

Table 3.20 Where Do You Usually Buy Your Cigarettes?*

	Gender		
	Female %	**Male %**	**Total %**
Convenience store	69.9 [47.7,85.5]	75.1 [66.7,82.0]	74.2 [66.4,80.8]
Supermarket	25.8 [11.4,48.4]	19.3 [13.2,27.4]	20.4 [14.5,27.9]
Liquor stores/Drug stores	46.6 [27.1,67.2]	27.1 [19.7,36.0]	30.3 [23.1,38.6]
Tobacco discount store	20.5 [9.0,40.3]	17.3 [11.5,25.0]	17.8 [12.4,24.8]
Discount stores such as Wal-Mart	9.6 [2.4,31.5]	8.8 [4.9,15.4]	8.9 [5.2,14.9]
Indian reservations	3.5 [0.5,21.4]	1.5 [0.5,4.9]	1.9 [0.7,5.0]
In military commissaries	0.0	0.7 [0.1,4.8]	0.6 [0.1,4.0]
Through the Internet	3.5 [0.5,21.4]	1.4 [0.3,5.4]	1.7 [0.5,5.2]
Through the mail	3.5 [0.5,21.4]	0.0	0.6 [0.1,4.0]
Other	23.2 [9.6,46.2]	7.8 [4.2,14.0]	10.3 [6.2,16.7]
Total	100.0	100.0	100.0

Cells are not mutually exclusive, percent reporting using location to buy cigarettes.
*Note. Asked only of those who were currently smoking or likely to return to smoking in next year.
Cell entries are weighted percentages and 95% confidence intervals.

Table 3.21 shows the weighted prevalence estimate of California Asian Indian tobacco use in response to the question, **"What brand do you usually smoke?"** Marlboro cigarettes are the most popular brand in the world and are the most popular brand among Asian Indian smokers as well. Camel cigarettes, Benson and Hedges, Winston, Merit, and Virginia Slims are less popular but still common favorites of Asian Indian smokers.

Table 3.21 What Brand Do You Usually Smoke?*

	Gender		
	Female %	**Male %**	**Total %**
Benson and Hedges	7.2 [1.7,25.2]	6.1 [2.7,13.0]	6.2 [3.1,12.2]
Camel	22.3 [9.2,44.6]	7.0 [3.2,14.9]	9.5 [5.2,16.6]
Carlton	0.0	0.4 [0.1,2.9]	0.3 [0.0,2.5]
Kool	0.0	0.4 [0.1,2.9]	0.3 [0.0,2.5]
Marlboro	44.5 [25.0,65.9]	63.9 [54.4,72.4]	60.8 [52.1,68.8]
Merit	5.1 [0.7,29.2]	0.0	0.8 [0.1,5.7]
Newport	0.0	0.7 [0.1,4.9]	0.6 [0.1,4.1]
Salem	0.0	1.0 [0.2,3.8]	0.8 [0.2,3.2]
Virginia Slims	5.2 [0.7,29.3]	0.0	0.8 [0.1,5.8]
Winston	0.0	4.1 [1.7,9.7]	3.5 [1.4,8.2]
Other	15.7 [5.8,36.1]	16.4 [10.6,24.6]	16.3 [10.9,23.6]
Total	100.0	100.0	100.0

Design-based F(9.21, 1529.68) = 2.2110; p = 0.0181
*Note. Asked only of those who were currently smoking or likely to return to smoking in next year.
Cell entries are weighted percentages and 95% confidence intervals.

Prevalence of Cigar Smoking

Table 3.22 shows the weighted prevalence estimate of California Asian Indian tobacco use in response to the question, **"Have you ever smoked a cigar, even just a few puffs?"** (Cigar=large cigar, cigarillo, or small cigar). These results showed surprisingly high rates of lifetime cigar smoking among both women and men, in contrast to their lifetime use of cigarettes, where their rates of use were lower. Although a minority of men and women ever smoked cigars the number of women ever smoking cigars was nearly double the number of women ever smoking 100 cigarettes. The number of men ever smoking cigars was 38% higher than the number of men ever smoking 100 cigarettes. This pattern is unusual; in the general U.S. population, lifetime smoking prevalence exceeds lifetime cigar smoking, particularly among women. In absolute terms, however, lifetime cigar use among Asian Indians is about half as prevalent as among Americans in general (approximately 18% and 57% for women and men, respectively Substance Abuse and Mental Health Services Administration (SAMHSA, 2004).

Table 3.22 Have You Ever Smoked a Cigar, Even Just a Few Puffs? (Cigar=large cigar, cigarillo, or small cigar)

	Gender		
	Female %	**Male %**	**Total %**
Yes	9.8 [8.3,11.5]	34.1 [31.6,36.6]	22.4 [20.8,24.0]
No	90.2 [88.5,91.7]	65.9 [63.4,68.4]	77.6 [76.0,79.2]
Total	100.0	100.0	100.0

Design-based F(1, 3222) = 226.0211; $p < 0.01$
*Note. Asked of entire sample.
Cell entries are weighted percentages and 95% confidence intervals.

Table 3.23 shows the weighted prevalence estimate of California Asian Indian tobacco use in response to the question, **"When was the last time you smoked a cigar?"** Despite the popularity of ever smoking a cigar among California Asian Indians, this appears not to be a behavior that they engage in frequently. Of the 22.4% who ever smoked a cigar, more than two-thirds have not had a cigar in over a year; over a third have not had a cigar in over five years. The prevalence of cigar smoking in the last month among all Asian Indians is lower than among Americans generally (SAMHSA, 2004). According to 2003 national household survey estimates, approximately 9% of men and 2% of women smoked a cigar in the last month, as compared to 3.1% of Asian Indian men and 0.5% of Asian Indian women

Table 3.23 When Was the Last Time You Smoked a Cigar?*

	Gender		
	Female %	Male %	Total %
0 months to 1 month ago	4.8 [2.1,11.0]	6.3 [4.4,9.1]	6.0 [4.3,8.4]
>1 month to 3 months ago	5.0 [2.4,10.3]	7.5 [5.2,10.6]	7.0 [5.1,9.6]
>3-6 months ago	3.9 [1.5,10.0]	7.0 [4.7,10.4]	6.4 [4.4,9.2]
>6-12 months ago	15.1 [9.9,22.3]	11.2 [8.6,14.6]	12.0 [9.6,15.0]
>1 year to 5 years ago	28.5 [21.1,37.2]	31.4 [27.3,35.8]	30.8 [27.1,34.7]
>5-15 years ago	33.1 [25.3,42.0]	18.9 [15.8,22.5]	21.9 [18.8,25.3]
15 or more years ago	9.5 [5.5,16.1]	17.6 [14.6,21.0]	15.9 [13.4,18.8]
Total	100.0	100.0	100.0

Design-based F(5.94, 4242.53) = 2.7299; p = 0.0123
*Note. Asked only of those who said that had smoked a cigar.
Cell entries are weighted percentages and 95% confidence intervals.

Table 3.24 shows the weighted prevalence estimate of California Asian Indian tobacco use in response to the question, **"In the past month, how often did you smoke cigars: everyday, several times per week, once per week, or less than once per week?"** The results of Table 3.30 reinforce the impression that, as much as Asian Indians like an occasional cigar, they are loath to make it a regular habit. All of the women and 85.6% of the men who smoked cigars in the last month also reported smoking cigars less than once per week.

Table 3.24 In the Past Month, How Often did You Smoke Cigars: Everyday, Several Times per Week, Once per Week, or Less than Once per Week?*

	Gender		
Frequency of cigar use	Female %	Male %	Total %
Everyday	0.0	7.3 [2.1,22.0]	6.1 [1.8,18.7]
Several times per week	0.0	4.6 [1.0,18.3]	3.8 [0.8,15.5]
Once per week	0.0	2.5 [0.3,17.3]	2.1 [0.3,14.7]
Less than once per week	100.0	85.6 [69.5,94.0]	88.0 [74.1,95.0]
Total	100.0	100.0	100.0

Design-based F(2.97, 115.73) = 0.3920; p = 0.7568
*Note. Asked only of those who had smoked cigars in last month.
Cell entries are weighted percentages and 95% confidence intervals.

Prevalence of Pipe Smoking

Table 3.25 shows the weighted prevalence estimate of California Asian Indian tobacco use in response to the question, **"Have you ever smoked a tobacco pipe?"** Lifetime pipe smoking is a rare phenomenon in California Asian Indians, particularly among women (only 1.5% had ever smoked a pipe versus nearly 10% who had ever smoked a cigar). Pipe smoking is far more common in India than cigar smoking, so the greater popularity of cigars in this sample may reflect the influence of acculturation to a society where cigar smoking is more common.

Table 3.25 Have You Ever Smoked a Tobacco Pipe?

	Gender		
	Female %	**Male %**	**Total %**
Yes	1.5 [1.0,2.3]	10.1 [8.7,11.7]	6.0 [5.2,6.9]
No	98.5 [97.7,99.0]	89.9 [88.3,91.3]	94.0 [93.1,94.8]
Total	100.0	100.0	100.0

Design-based F(1, 3221) = 93.9605; p < 0.01
*Note. Asked of entire sample.
Cell entries are weighted percentages and 95% confidence intervals.

Table 3.26 shows the weighted prevalence estimate of California Asian Indian tobacco use in response to the question, **"Do you now smoke a tobacco pipe every day, some days or not at all?"** For the few women who ever smoked a pipe, the preferred pipe appears to be the hookah, which is common in India, less common in the U.S. Among men, they are equally likely to choose a pipe or hookah.

Table 3.26 Do You Now Smoke a Tobacco Pipe Every Day, Some Days, or Not at All?*

	Gender		
Frequency of pipe use	**Female %**	**Male %**	**Total %**
Everyday (Standard pipe)	0.0	1.4 [0.2,9.1]	1.2 [0.2,8.1]
Some days (Standard pipe)	4.4 [0.6,25.7]	5.5 [2.9,10.3]	5.4 [2.9,9.7]
Not at all (Standard pipe)	25.7 [11.6,47.7]	68.9 [60.9,75.8]	63.7 [56.2,70.6]
Some days (Hookah)	18.0 [5.9,43.4]	0.6 [0.1,4.2]	2.7 [1.0,7.1]
Not at all (Hookah)	52.0 [31.1,72.2]	23.7 [17.5,31.2]	27.1 [20.9,34.3]
Total	100.0	100.0	100.0

Design-based F(5.94, 4242.53) = 2.7299; p = 0.0123
*Note. Asked only of those who said that had smoked a pipe.
Cell entries are weighted percentages and 95% confidence intervals.

Prevalence of Chewing Tobacco

Table 3.27 shows the weighted prevalence estimate of California Asian Indian tobacco use in response to the question, **"Have you ever used chewing tobacco such as Redmann, Levi Garrett, or Beechnut?"** We had hypothesized that the disparity in smoking prevalence between men and women would diminish with acculturation to the U.S. For ever chewing tobacco that seems not to be the case. For either sex, lifetime chewing of tobacco by California Asian Indian women and California Asian Indian men is uncommon, but particularly so for women. In India, oral use of tobacco is more common, particularly among women, compared to the prevalence figures observed for California Asian Indians

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Table 3.27 Have You Ever Chewed Tobacco such as Redmann, Levi Garrett, or Beechnut?

	Gender		
	Female %	**Male %**	**Total %**
Yes	1.3 [0.9,2.0]	7.0 [5.7,8.6]	4.3 [3.6,5.2]
No	98.7 [98.0,99.1]	93.0 [91.4,94.3]	95.7 [94.8,96.4]
Total	100.0	100.0	100.0

Design-based F(1, 3224) = 64.3156; p < 0.01
*Note. Asked of entire sample.
Cell entries are weighted percentages and 95% confidence intervals.

Table 3.28 shows the weighted prevalence estimate of California Asian Indian tobacco use in response to the question, **"Do you now use chewing tobacco every day, some days, or not at all?"** Of those California Asian Indians who have ever chewed tobacco, 85.2% are no longer using chewing tobacco regularly.Prevalence of current use of chewing tobacco is much lower than in India, by both sexes.

Table 3.28 Do You Now Use Chewing Tobacco Every Day, Some Days, or Not at All?*

	Gender		
	Female %	**Male %**	**Total%**
Everyday	2.7 [0.4,17.3]	7.3 [3.6,14.3]	6.6 [3.3,12.7]
Some days	4.5 [0.6,26.3]	8.9 [4.9,15.6]	8.2 [4.6,14.1]
Not at all	92.8 [74.1,98.3]	83.8 [75.5,89.7]	85.2 [77.9,90.4]
Total	100.0	100.0	100.0

Design-based F(1.91, 257.93) = 0.7441; p = 0.4705
*Note. Asked only of those who have ever used chewing tobacco.
Cell entries are weighted percentages and 95% confidence intervals.

Table 3.29 shows the weighted prevalence estimate of California Asian Indian tobacco use in response to the question, **"Have you ever used snuff, such as Skoal, Skoal Bandits, or Copenhagen?"** As with all previous forms of tobacco already discussed, the sex difference in use of snuff is significant. Between both sexes, the overall lifetime use of snuff is less than in India.

Table 3.29 Have You Ever Used Snuff, such as Skoal, Skoal Bandits, or Copenhagen?*

	Gender		
	Female %	**Male %**	**Total %**
Yes	1.0 [0.6,1.7]	3.8 [2.9,4.9]	2.5 [2.0,3.1]
No	99.0 [98.3,99.4]	96.2 [95.1,97.1]	97.5 [96.9,98.0]
Total	100.0	100.0	100.0

Design-based F(1, 3218) = 22.9340; p < 0.01
*Note. Asked of entire sample.
Cell entries are weighted percentages and 95% confidence intervals.

Table 3.30 shows the weighted prevalence estimate of California Asian Indian tobacco use in response to the question, **"Do you now use snuff every day, some days, or not at all?"** Current use of snuff is nonexistent among California Asian Indian women and is close to nonexistent for the men.

Table 3.30 Do You Now Use Snuff Every Day, Some Days, or Not at All?*

	Gender		
	Female %	**Male %**	**Total %**
Everyday	0.0	0.0	0.0
Some day	0.0	12.0 [5.8,23.1]	9.7 [4.7,18.9]
Not at all	100.0	88.0 [76.9,94.2]	90.3 [81.1,95.3]
Total	100.0	100.0	100.0

Design-based F(1, 81) = 2.0008; p = 0.1610
*Note. Asked only of those who have used snuff.
Cell entries are weighted percentages and 95% confidence intervals.

Indian-specific Tobacco Use Among California Asian Indians

Several tobacco-related products have their origins in India or predominate in India and are hence termed "India-specific" tobacco products, even though some of them are produced in limited quantities in the U.S. or in countries other than India. These include bidis, paan masala, gutka, and hookahs. These India-specific tobacco products have been described in some detail in Chapter 1. Below we provide tables describing the use of Asian Indian-specific tobacco products. In general the use of Asian Indian-pecific tobacco products is much lower than one might have anticipated from the popularity of these products in India. The product, paan, which can be used with or without tobacco, is an exception.

Figure 3.7 shows the distribution of California Asian Indian tobacco use in response to the question, **"About how old were you when you first used ANY recognizable Indian tobacco product, such as bidis, paan/paan masala, gutka?"** Ever use of an Asian Indian-specific tobacco product appears to be common and appears to occur for the first time for most California Asian Indians before the end of their twenties.

Figure 3.7 Age in Years When First Used Any Recognizable Indian Tobacco Product

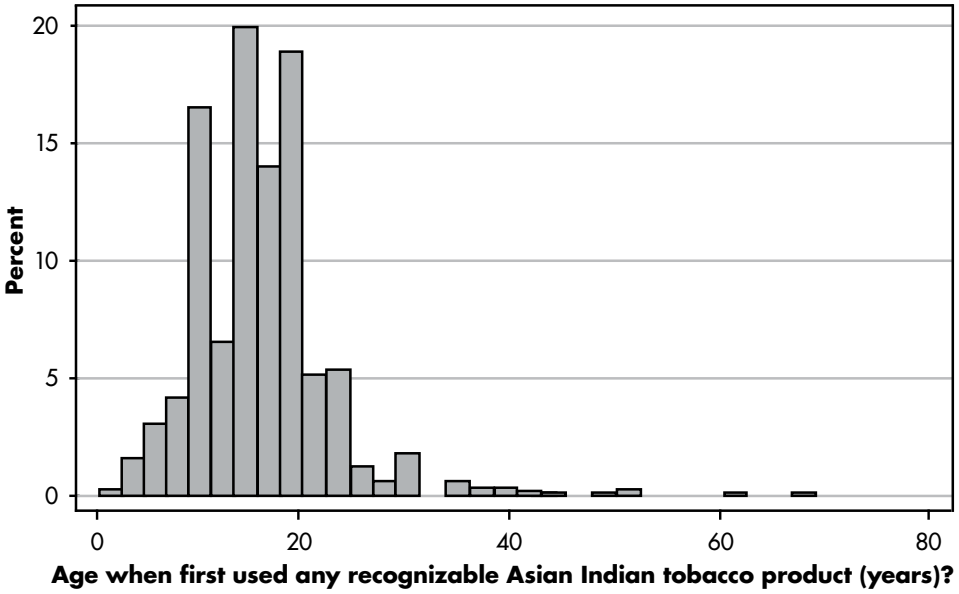
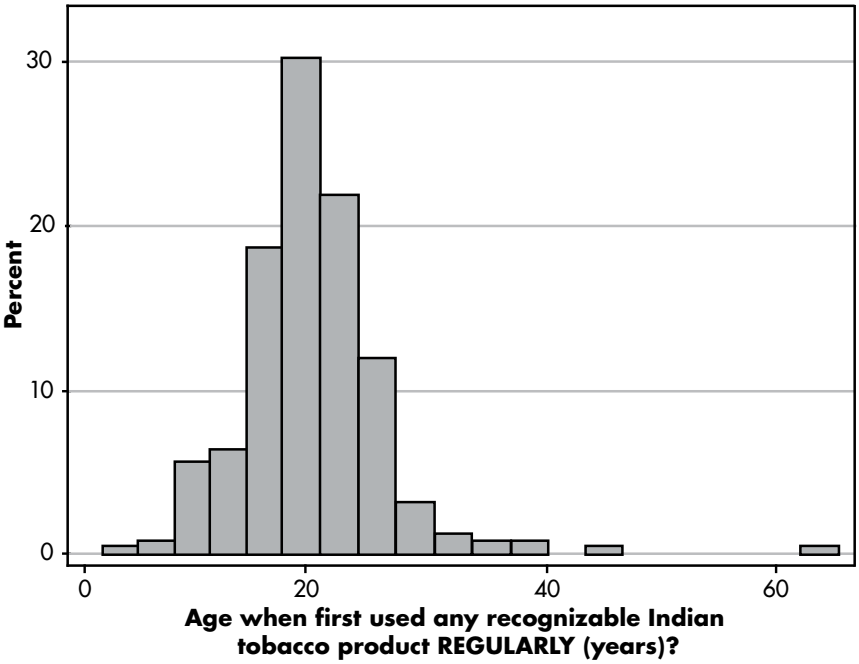


Figure 3.8 shows the distribution of California Asian Indian tobacco use in response to the question, **"About how old were you when you first started using ANY recognizable Indian tobacco product REGULARLY, including bidis, paan/paan masala, gutka?"** Among ever users of Indian-specific tobacco products, regular use of the product began before or during their twenties.

Figure 3.8 Age in Years When First Used Any Recognizable Indian Tobacco Product Regularly



Bidis consist of tobacco hand rolled and tied together in a dry green or brown tendu leaf and smoked without a filter. A common brand of bidis is "Ganesh bidis." These products are generally less expensive than western-made cigarettes and are, therefore, more appealing to customers who are price sensitive.

Table 3.31 shows the weighted prevalence estimate of California Asian Indian tobacco use in response to the question, **"Have you smoked at least 100 bidis in your entire life?"** Relative to the rates of bidi tobacco use among residents of India, the rates reported by California Asian Indians are strikingly low. These low rates of use of an Asian Indian-specific tobacco product stand in contrast to the relatively high rates of ever use of cigars by California Asian Indians, a tobacco product seldom used in India.

Table 3.31 Have You Smoked at Least 100 Bidis in Your Entire Life?

	Gender		
	Female %	**Male %**	**Total %**
Yes	0.3 [0.1,0.8]	4.1 [3.3,5.2]	2.3 [1.8,2.9]
No	99.7 [99.2,99.9]	95.9 [94.8,96.7]	97.7 [97.1,98.2]
Total	100.0	100.0	100.0

Design-based F(1, 3222) = 38.4121; p < 0.01
*Note. Asked of entire sample.
Cell entries are weighted percentages and 95% confidence intervals.

Respondents who reported having smoked at least 100 bidis in their lifetime were asked, **"Do you now smoke bidis every day, some days, or not at all?"** In stark contrast to bidi use in India, current bidi tobacco use among California Asian Indian women ever users of bidis is nonexistent (100% reported no bidi tobacco use in last 30 days) and uncommon in California Asian Indian men (92.4% reported no bidi tobacco use in last 30 days; 95% CI = 79.7 – 97.4). As discussed previously, current cigarette use in California Asian Indians is less prevalent than cigarette use in Americans generally, but it is still many times greater than the prevalence of their current bidi tobacco use. The differences in bidi tobacco use and cigarette use between residents of India and Asian Indian residents of California may be most parsimoniously explained as reflecting differences in access to the two products in both regions. Bidis are cheap and available everywhere in India but cigarettes, which are taxed at a much higher rate than bidis, are expensive and less available in India. By contrast, in the U.S. cigarettes are purchasable at more retail locations than any other consumer product with the possible exception of soda beverages. Bidis, on the other hand, are generally sold in the U.S. only at shops catering to South Asians or at boutique stores that appeal to an "alternative" lifestyle.

Only four males were eligible to respond to the question, **"On how many of the past 30 days did you smoke bidis?"** Three of these respondents reported smoking bidis on zero days of the 30 days (i.e., they were now abstinent). These results illustrate how different Asian Indian immigrants are from the average resident in India, where bidi tobacco use is common, especially among the lower classes.

Paan/ paan masala is betel nut mixed with the leaf of the betel pepper in a paste form; sometimes mixed with tobacco and other optional ingredients, sealed in a quid form. Some common brand names of paan masala are "Paan Parag" and "Chutki."

Table 3.32 shows the weighted prevalence estimate of California Asian Indian tobacco use in response to the question, **"Have you ever chewed paan/paan masala in your entire life, with or without tobacco?"** The remarkably low prevalence of bidi tobacco use among California Asian Indians might have suggested a wholesale rejection of India-specific psychoactive products, but the prevalence of lifetime use of paan confirms otherwise. A majority of both California Asian Indian men and women reported lifetime use of paan, with or without tobacco.

Table 3.32 Have You Ever Chewed Paan/Paan Masala in Your Entire Life, With or Without Tobacco?

	Gender		
	Female %	**Male %**	**Total %**
Yes	56.3 [53.5,59.0]	63.4 [60.9,65.9]	60.0 [58.1,61.8]
No	43.7 [41.0,46.5]	36.6 [34.1,39.1]	40.0 [38.2,41.9]
Total	100.0	100.0	100.0

Design-based F(1, 3224) = 13.9882; p = 0.0002
*Note. Asked of entire sample.
Cell entries are weighted percentages and 95% confidence intervals.

Table 3.33 shows the weighted prevalence estimate of California Asian Indian tobacco use in response to the question, **"Do you now chew paan every day, some days, or not at all?"** For those California Asian Indians who reported ever chewing paan, almost none of them reported chewing paan everyday. In California Asian Indians, paan use occurs most frequently during celebrations and at parties, which are intermittent. It is not surprising, then, that while lifetime consumption of paan is high, "current" use is low and just occasional.

Table 3.33 Do You Now Chew Paan Every Day, Some Days, or Not at All?*

	Gender		
Frequency of paan use	**Female %**	**Male %**	**Total %**
Everyday	0.2 [0.1,1.0]	0.6 [0.2,1.5]	0.4 [0.2,0.9]
Some day	20.0 [17.1,23.1]	19.0 [16.6,21.6]	19.4 [17.6,21.4]
Not at all	79.8 [76.6,82.7]	80.4 [77.8,82.9]	80.2 [78.1,82.0]
Total	100.0	100.0	100.0

Design-based F(2.00, 3945.67) = 0.7303; p = 0.4818
*Note. Asked only of those who reported ever chewing paan/paan masala with or without tobacco.
Cell entries are weighted percentages and 95% confidence intervals.

Figure 3.9 shows the distribution of California Asian Indian tobacco use in response to the question, **"On how many of the past 30 days did you chew paan?"** Although ever use of paan is a majority phenomenon among California Asian Indians, it is rarely an everyday habit. In fact, the modal response to this question is zero days in the past 30 days, despite the fact that paan use is popular at parties and Asian Indian holiday celebrations.

Figure 3.9 Number of Days of the Past 30 on Which You Chewed Paan

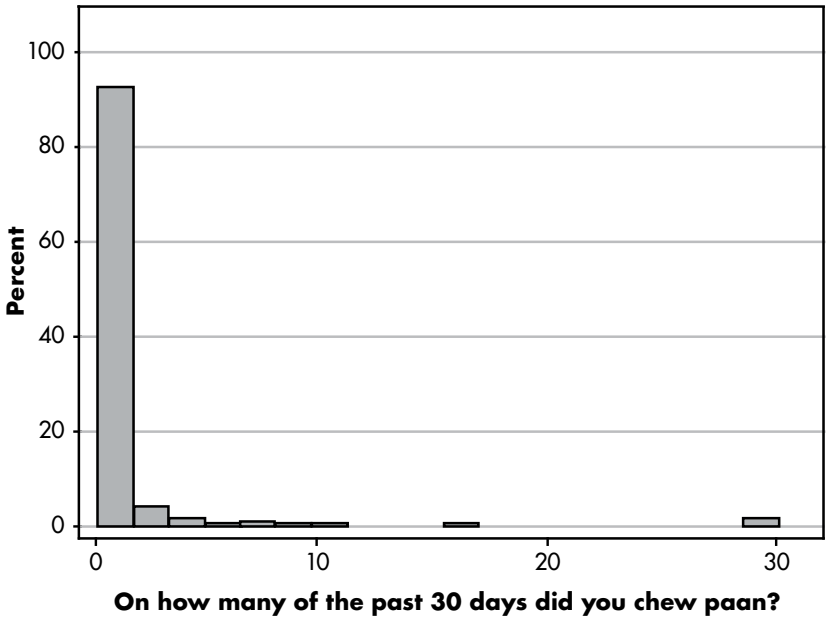


Table 3.34 shows the weighted prevalence estimate of California Asian Indian tobacco use in response to the question, **"Do you chew paan with tobacco, also known as zarda or kathi?"** The responses to this question illustrate that California Asian Indians, while generally receptive to the use of paan without tobacco, are not particularly interested in those forms of paan specifically known to contain tobacco. For those who have ever chewed paan, only 4.4 % of women chew paan with tobacco known as "zarda" and then do so only "sometime." For men, the corresponding percent is 11.1%, but only 4.6% said that they chewed paan with tobacco "always."

Table 3.34 Do You Chew Paan with Tobacco, also Known as Zarda or Kathi?*

	Gender		
	Female %	**Male %**	**Total %**
Always	0.0	4.6 [2.2,9.5]	2.5 [1.2,5.3]
Sometime	4.4 [2.3,8.3]	6.5 [4.0,10.2]	5.5 [3.8,8.0]
Never	95.6 [91.7,97.7]	88.9 [83.6,92.6]	92.0 [88.7,94.3]
Total	100.0	100.0	100.0

Design-based F(1.89, 777.96) = 4.1954; p = 0.0171
*Note. Asked only of those who reported chewing paan every day or some days.
Cell entries are weighted percentages and 95% confidence intervals.

Table 3.35 shows the weighted prevalence estimates of California Asian Indian tobacco use in response to the question, **"Do you chew paan with areca nut, also known as betel nut or supari?"** In contrast to prevalence rates reported for consumption of paan with tobacco, consumption of paan with betel nut is relatively high for both men and women among California Asian Indians. For those who have ever used paan, both California Asian Indian men and women are equally unlikely (16.5% vs. 20.6%, respectively) to report "never" using paan with areca nut (betel nut). There is nonetheless a sex difference favoring higher rates of everyday use by the men (42.5%) compared to the women (26.4%). Most women using paan with areca nut (betel nut) report chewing it "sometime" (53%).

Table 3.35 Do You Chew Paan with Areca Nut, also Known as Betel Nut or Supari?*

	Gender		
	Female %	**Male %**	**Total %**
Always	26.4 [20.0,34.0]	42.5 [35.6,49.7]	35.1 [30.1,40.4]
Sometime	53.0 [44.7,61.2]	41.0 [34.3,48.1]	46.5 [41.2,51.9]
Never	20.6 [14.1,29.1]	16.5 [11.6,23.1]	18.4 [14.2,23.5]

Design-based F(1.89, 777.96) = 4.1954; p = 0.0171
*Note. Asked only of those who reported chewing paan every day or some days.
Cell entries are weighted percentages and 95% confidence intervals.

Gutka is a chewable, flavored (usually sweetened) tobacco product with betel nut in powder form. Some brand names for gutka are "Manikchand" and "Tulsi."

Table 3.36 shows the weighted prevalence estimate of California Asian Indian tobacco use in response to the question, **"Have you ever chewed gutka in your entire life?"** As with all Asian Indian-specific tobacco products, more men than women among California Asian Indians report ever chewing gutka, but prevalence rates are low for both (10.5% vs. 3.7%).

Table 3.36 Have You Ever Chewed Gutka in Your Entire Life?

	Gender		
	Female %	**Male %**	**Total %**
Yes	3.7 [2.8,4.8]	10.5 [9.0,12.3]	7.2 [6.3,8.3]
No	96.3 [95.2,97.2]	89.5 [87.7,91.0]	92.8 [91.7,93.7]

Design-based F(1, 3211) = 50.2572; p < 0.01
*Note. Asked of entire sample.
Cell entries are weighted percentages and 95% confidence intervals.

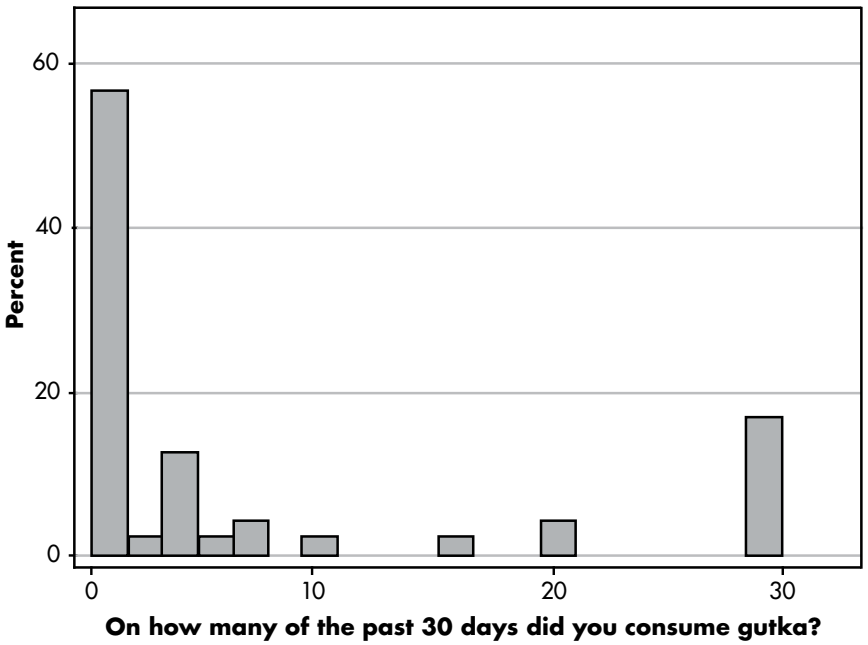
Table 3.37 shows the weighted prevalence estimate of California Asian Indian tobacco use in response to the question, **"Do you now use gutka every day, some days, or not at all?"** As we have seen for use of other Asian Indian-specific tobacco products, not only is the prevalence low for both sexes, but for those few who use it, the vast majority (81.2%) have not used it at all in the last 30 days. One difference from previous findings associated with use of other Asian Indian-specific tobacco products, however, is that women are equally likely to use gutka as men.

Table 3.37 Do You Now Use Gutka Every Day, Some Days, or Not At All?*

	Gender		
Frequency of gutka use	**Female %**	**Male %**	**Total %**
Everyday	1.0 [0.1,6.8]	4.0 [1.7,9.0]	3.3 [1.5,7.1]
Some day	21.1 [12.3,33.8]	13.7 [9.2,19.9]	15.5 [11.3,21.0]
Not at all	77.9 [65.2,86.9]	82.3 [75.4,87.5]	81.2 [75.3,85.9]
Design-based F(1.88, 432.59) = 1.7227; p = 0.1818 *Note. Asked only of those who reported chewing gutka in entire life. Cell entries are weighted percentages and 95% confidence intervals.			

Figure 3.10 shows the distribution of California Asian Indian tobacco use in response to the question, **"On how many of the past 30 days did you consume gutka?"** Similar to what has been observed for the frequency of use of other Asian Indian-specific tobacco products, not only is overall prevalence low, but frequency of use by those using it is also low.

Figure 3.10 Days in the Past 30 on Which Consumed Gutka



Prevalence of Any Tobacco Use When Aggregating Across a Variety of Tobacco Products

The final tables summarize the forgoing by examining the prevalence estimates for total combined tobacco use, for total conventional tobacco use, and for total Asian Indian-pecific tobacco use. Table 3.48 describes total combined tobacco use for these respondents. These estimates indicate that some experimentation with tobacco products is a majority phenomenon for women and men, but characterizes Asian Indian men more than Asian Indian women.

Table 3.38 Ever Use of Either Conventional or Indian-specific Tobacco Products

Ever used either conventional or Indian-specific tobacco?	Female %	Male %	Total %
No	40.8 [38.0,43.6]	25.7 [23.5,28.0]	32.9 [31.1,34.8]
Yes	59.2 [56.4,62.0]	74.3 [72.0,76.5]	67.1 [65.2,68.9]
Total	100.0	100.0	100.0

Design-based F(1, 3227) = 68.09; p <0.0001
Cell entries are weighted percentages and 95% confidence intervals.

Table 3.39 examines total combined tobacco use for conventional tobacco products such as cigarettes, cigars, pipe smoking, chewing tobacco, and snuff. The sex difference observed in Table 3.38 in the prevalence estimates for total combined tobacco use including both conventional and Asian Indian-specific tobacco products is even more pronounced when the sexes are compared on use of only the total of conventional tobacco products such as cigarettes and cigars. The estimates of conventional tobacco use show that less than half of either men or women have ever used conventional tobacco products. If these Asian Indians had been assessed only for use of conventional tobacco products, they would appear to be lower frequency users of tobacco products than most Americans and certainly lower frequency users than is indicated in Table 3.48. This is an illustration of why culture-specific tobacco use surveillance is likely to describe a more complete picture than tobacco use surveillance that relies on standard items for all ethnic subgroups.

Table 3.39 Ever Use of Conventional Tobacco Products

Ever used conventional tobacco?	Female %	Male %	Total %
No	86.7 [84.7,88.4]	55.3 [52.7,57.9]	70.4 [68.6,72.1]
Yes	13.3 [11.6,15.3]	44.7 [42.1,47.3]	29.6 [27.9,31.4]
Total	100.0	100.0	100.0

Design-based F(1, 3227) = 315.67; p < 0.0001
Cell entries are weighted percentages and 95% confidence intervals.

Table 3.40 shows the total combined use of only Asian Indian-specific tobacco products such as gutka, paan with tobacco and bidis. Contrary to expectation, the sex differences appear to be reduced for Asian Indian-specific tobacco use compared to conventional tobacco use. For both Asian Indian men and women, ever use of an Asian Indian-specific tobacco product is a majority phenomenon. Whatever the social pressures on Asian Indian women not to use tobacco products, they apply both to conventional tobacco use and to Asian Indian-specific tobacco use.

Table 3.40 Ever Use of Indian-specific Tobacco Products

Ever used Indian specific tobacco?	Female %	Male %	Total %
No	43.2 [40.4,46.0]	35.5 [33.0,38.0]	39.2 [37.3,41.1]
Yes	56.8 [54.0,59.6]	64.5 [62.0,67.0]	60.8 [58.9,62.7]
Total	100.0	100.0	100.0

Design-based F(1, 3227) = 16.30; p = 0.0001
Cell entries are weighted percentages and 95% confidence intervals.

A consistently inverse correlate of adult tobacco use in the U.S. is educational attainment (e.g., Wagenknecht et al., 1990). Educational attainment was found to be a significant protective influence on Asian Indian-specific tobacco use among residents of India (Chaudry et al., 2002) as well, but was positively related to cigarette use. Within the confines of Asian Indians resident in California, is educational attainment still a significant correlate of tobacco use? Tables 3.41-3.43 examine the correlates of educational attainment for total combined tobacco use, for total conventional tobacco use, and for total Asian Indian-specific tobacco use. It is evident for all aggregated types of tobacco use that educational attainment is consistently related to higher rates of tobacco use, both conventional and Asian Indian-specific tobacco use. As Table 3.44 indicates, this relationship is reversed, however, in use of bidi tobacco by men. In women there is no relationship between bidi use and educational attainment because lifetime bidi use among Asian Indian women residing in California is nearly nonexistent. As will be discussed in the next chapter, religiosity is associated with lower rates of tobacco use, whether conventional or Asian Indian-specific. Religiosity, in turn, is inversely related to educational attainment in this population ($r = -.22$; $p < .0001$). To the extent that higher educational attainment decreases religiosity, to that extent it may increase risk of lifetime exposure to tobacco use.

Table 3.41 Total Combined Ever Use of Conventional and Indian-specific Tobacco Products, by Educational Attainment

Have you ever used any tobacco product, conventional or Indian-specific?				
	Females		Males	
Educational attainment	No %	Yes %	No %	Yes %
Less than high school	78.3 [67.4,86.3]	21.7 [13.7,32.6]	55.7 [43.8,67.0]	44.3 [33.0,56.2]
High school degree	66.3 [55.0,76.1]	33.7 [23.9,45.0]	49.7 [39.1,60.3]	50.3 [39.7,60.9]
Some college or technical school education	49.4 [40.4,58.5]	50.6 [41.5,59.6]	34.5 [26.6,43.5]	65.5 [56.5,73.4]
College degree	37.3 [32.8,42.1]	62.7 [57.9,67.2]	24.6 [20.7,28.9]	75.4 [71.1,79.3]
Post-graduate or professional education	31.6 [27.9,35.6]	68.4 [64.4,72.1]	18.5 [15.9,21.5]	81.5 [78.5,84.1]
Total	40.7 [38.0,43.5]	59.3 [56.5,62.0]	25.6 [23.4,28.0]	74.4 [72.0,76.6]

Design-based F(3.99, 12847.87)= 21.87; p < 0.0001 (females)
Design-based F(3.98, 12826.00)= 20.34; p < 0.0001 (males)
Cell entries are weighted percentages and 95% confidence intervals.

Table 3.42 Total Combined Ever Use of Conventional Tobacco Products, by Educational Attainment

Have you ever used any conventional tobacco product?				
	Females		Males	
Educational attainment	No %	Yes %	No %	Yes %
Less than high school	97.1 [89.2,99.3]	2.9 [0.7,10.8]	69.9 [57.7,79.8]	30.1 [20.2,42.3]
High school degree	94.0 [84.9,97.7]	6.0 [2.3,15.1]	65.6 [54.9,75.0]	34.4 [25.0,45.1]
Some college or technical school education	87.5 [79.8,92.5]	12.5 [7.5,20.2]	52.6 [43.4,61.7]	47.4 [38.3,56.6]
College degree	87.9 [84.5,90.7]	12.1 [9.3,15.5]	51.2 [46.3,56.0]	48.8 [44.0,53.7]
Post-graduate or professional education	82.7 [79.4,85.6]	17.3 [14.4,20.6]	55.4 [51.9,59.0]	44.6 [41.0,48.1]
Total	86.7 [84.7,88.4]	13.3 [11.6,15.3]	55.3 [52.7,57.9]	44.7 [42.1,47.3]

Design-based F(3.96, 12755.87)= 4.23; p = 0.0021 (females)
Design-based F(3.98, 12805.45)= 3.02; p = 0.0172 (males)
Cell entries are weighted percentages and 95% confidence intervals.

Table 3.43 Total Combined Ever Use of Indian-specific Tobacco Products by Educational Attainment

Have you ever used any Indian-specific tobacco product?				
	Females		Males	
Educational attainment	No %	Yes %	No %	Yes %
Less than high school	79.7 [69.0,87.4]	20.3 [12.6,31.0]	67.3 [55.6,77.3]	32.7 [22.7,44.4]
High school degree	68.3 [57.1,77.7]	31.7 [22.3,42.9]	62.1 [51.5,71.6]	37.9 [28.4,48.5]
Some college or technical school education	51.4 [42.3,60.4]	48.6 [39.6,57.7]	49.6 [40.5,58.7]	50.4 [41.3,59.5]
College degree	39.7 [35.1,44.4]	60.3 [55.6,64.9]	32.8 [28.5,37.4]	67.2 [62.6,71.5]
Post-graduate or professional education	34.4 [30.6,38.4]	65.6 [61.6,69.4]	27.8 [24.7,31.1]	72.2 [68.9,75.3]
Total	43.1 [40.4,45.9]	56.9 [54.1,59.6]	35.5 [33.0,38.0]	64.5 [62.0,67.0]

Design-based F(3.99, 12848.71)= 20.46; p < 0.0001 (females)
Design-based F(3.97, 12775.96)= 21.71; p < 0.0001 (males)
Cell entries are weighted percentages and 95% confidence intervals.

Table 3.44 Lifetime Use of Bidi Tobacco by Educational Attainment

	Have you ever used bidis?			
	Females		Males	
Educational attainment	No %	Yes %	No %	Yes %
Less than high school	100.0	0.0	97.8 [91.6,99.5]	2.2 [0.5,8.4]
High school degree	100.0	0.0	90.8 [82.1,95.5]	9.2 [4.5,17.9]
Some college or technical school education	100.0	0.0	94.5 [89.4,97.2]	5.5 [2.8,10.6]
College degree	99.6 [98.5,99.9]	0.4 [0.1,1.5]	95.0 [92.7,96.6]	5.0 [3.4,7.3]
Post-graduate or professional education	99.7 [97.9,100.0]	0.3 [0.0,2.1]	97.0 [95.8,97.9]	3.0 [2.1,4.2]
Total	99.7 [99.2,99.9]	0.3 [0.1,0.8]	95.8 [94.8,96.7]	4.2 [3.3,5.2]

Design-based F(3.80, 12231.67)= 0.22; p = 0.9180 (females)
Design-based F(3.90, 12531.11)= 2.96; p = 0.0198 (males)
Cell entries are weighted percentages and 95% confidence intervals.

Conclusions

Asian Indians resident in California have enviably low rates of current tobacco use, whether assessed as conventional tobacco use, such as cigarette smoking, or assessed as Asian Indian-specific tobacco use, such as bidis smoking. Their smoking rates reflect neither the smoking rates of their country of origin nor the smoking rates of their adopted country. Rather, their smoking rates probably reflect a "healthy immigrant" effect whereby those advantaged by high incomes and good health practices have an advantage in the competition to secure a limited number of immigration slots in their efforts to migrate to the U.S. (Singh and Siahpush, 2001). The prevalence estimates observed for current tobacco use in this population were lower than the corresponding rates reported for Asian Indians nationally (CDC, 2004). For Asian Indian women living in California, their 1.9% (95% CI = 1.3 – 2.9) prevalence was not significantly different from the 3% (95% CI = 1.7 – 5.2) reported for U.S.-resident Asian Indian women nationally. For Asian Indian men living in California, however, the observed prevalence of 8.7% (95% CI = 7.3 – 10.4) was considerably lower than the 20.0% (95% CI = 12.8 – 29.8) observed for U.S.-resident Asian Indian men nationally. The difference in timing of the two surveys explains part of the discrepancy. The national prevalence estimates were obtained from the National Survey on Drug Abuse and Health conducted in 1999-2001. Had the survey been conducted in 2004, the prevalence estimates for all U.S.-resident ethnic groups, including Asian Indians, would probably have been lower, in keeping with the decreasing adult tobacco use prevalence observed nationally in recent years (CDC, 2005).

An additional reason for the lower prevalence estimates for Asian Indians living in California is that California's comprehensive tobacco control program has reduced adult tobacco use rates below those of most other states (CDC, 2004). Behavioral Risk Factor Survey data collected in all 50 states in 2002 showed that 19.7% of California men smoked (95% CI = 17.3 – 22.1), which was 24% lower than the U.S. median male prevalence rate of 25.9%. If we assume that the California Asian Indian male rate in 1999-2001 was 24% lower than the 1999-2001 national male median, it would have been 15.2% instead of 20.0%. Moreover, the California adult prevalence rate has been dropping faster than the median U.S. adult prevalence rate (Gilpin et al., 2003), dropping 21.8 percent from 1992-93 to 2001-02. If we extrapolated from this experience, the projected Asian Indian rate in California in 2004 should have been around 12.7 %, to be consistent with the foregoing.

A WHO sponsored survey of third year student health professionals in countries worldwide included prevalence estimates for smoking among 719 male and 541 female dental school students in India. Their prevalence rates were 14.9% (95% CI = 10.7 – 20.4) for the males and 2.4% (95% CI = 0.8 – 6.9) for the females. These prevalence estimates for Indian health professionals are pertinent for Asian Indians living in California because a disproportionate number of Asian Indians immigrated to the U.S. because they were highly educated professionals. The prevalence estimates for Indian female third year student health professionals were similar to the prevalence estimates reported for Asian Indian women living in California. The prevalence estimates for Indian male third year student health professionals were intermediate between those reported for Asian Indian men living in California in 2004 and Asian Indian men living in the U.S. in 1999–2001.

What remaining discrepancy exists between the Asian Indian male smoking prevalence rate observed here and comparable rates for Asian Indian males reported elsewhere might be attributed to the relatively high non-participation rate observed in this survey. Smokers are less likely to participate in health surveys than non-smokers (O'Neill et al., 1995; Shahar et al., 1996). Although the effect is thought to be small, the higher non-participation by smokers could depress observed prevalence rates slightly. Even if we had a way to correct for this potential bias from smokers' non-response, the resulting higher prevalence rate estimate would still be lower than rates observed for males in California and certainly lower than rates observed for males in the U.S.

These low rates of current tobacco use do not mean that Asian Indians in California have not ever been exposed to tobacco use. In fact, the majority of both Asian Indian men and Asian Indian women report ever use of tobacco, but more often as Asian Indian-specific tobacco use. In most comparisons, Asian Indian women report lower rates of ever use and current use of tobacco than their male counterparts. The median age of first exposure to conventional tobacco use is higher than reported for Americans in general, suggesting that tobacco control efforts focusing on college youth might have a better chance of preventing regular tobacco use onset among Asian-Indian youth.

While relapse rates for Asian Indian smokers trying to quit are high, consistent with relapse rates reported for Americans in general, Asian Indian ever smokers appear to have higher rates of long-term abstinence. Those who continue to smoke do so reluctantly; most state an interest in quitting their tobacco use habit. Most Asian Indian smokers contemplating use of a tobacco cessation hotline state no preference for a counselor who speaks their native Asian Indian language, but still one sixth of the ever smokers did state such a preference.

In stark contrast to bidi tobacco use in India, lifetime bidi tobacco use among California Asian Indian women is nonexistent and vanishingly uncommon in California Asian Indian men. By contrast, ever use of cigars is relatively high among Asian Indians in California but is rare in India. The most parsimonious explanation for these differences in use of tobacco products is the relative availability of these products in the U.S. and India, but associations of bidi tobacco use with lower social class status and use of cigars with entrepreneurship may also be influences explaining the observed differences in bidi tobacco use and cigar smoking among Asian Indians resident in California.

Chapter 4 Examining the Relationship Between Acculturation and Tobacco Use Among Californians of Asian Indian Ancestry

- Key findings
- Background relating acculturation to tobacco use outcomes in different ethnic groups
- Examining conventional tobacco use prevalence as a function of differences in acculturation, variously defined
- Examining Asian Indian-specific tobacco use prevalence as a function of differences in acculturation, variously defined
- Examining conventional tobacco use prevalence as a function of religious differences, and as a function of degree of adherence to religiosity
- Examining Asian Indian-specific tobacco use prevalence as a function of religious differences, and as a function of degree of adherence to religiosity

Key Findings

- Cultural and religious norms are associated with California Asian Indian tobacco use in predictable ways but demographic features unique to Asian Indian immigrants to the U.S. also contribute to the tobacco use patterns observed here.
- California Asian Indians, especially the women, are susceptible to increased tobacco use with increasing acculturation–to a point. The men showed a non-significant increase with increasing acculturation. The result was that California Asian Indian women moved towards greater parity with California Asian Indian men in their smoking, with increasing acculturation, but continued to lag behind the men.
- California Asian Indians, both men and women, were less likely to use tobacco products, either conventional American tobacco products or Asian Indian-specific tobacco products, the more they reported that their religion discouraged members from using tobacco. This was particularly true for the 20% of respondents who adhered to the teachings of Sikhism.
- The high educational achievement and high household income of English-speaking Asian Indian immigrants "protect" them from using India's most popular and ubiquitous form of tobacco use, namely bidis. However, these demographic characteristics of the upper class may also put them at risk of using a tobacco product not specific to India but one that is popularly associated with membership in high society, namely cigars. Rates of lifetime use of at least 100 bidis were surprisingly low and rates of cigar use were surprisingly high, given the ubiquity of bidis and the rarity of cigars in India.

Background Relating Acculturation to Tobacco Use Outcomes in Different Ethnic Groups

Acculturation was at one time an academic focus limited to anthropologists and linguists. As evidence has grown, however, of the impact of acculturation on health-related behaviors and on health outcomes, interest in acculturation processes has grown among public health researchers. A consensus is emerging that acculturation by U.S. immigrants from Asian, African, or South American countries to western lifestyle practices is associated with worsening mortality (e.g., Singh and Siahpush, 2001), with worsening cardiovascular risks (Gordon-Larsen et al., 2003), with increasing disability and chronic disease (Singh and Miller, 2004), and with less healthy lifestyle practices, such as eating habits (Song et al., 2004).

Examining Conventional and Asian Indian-specific Tobacco Use Prevalence as a Function of Differences in Acculturation, Variously Defined

One of the strengths of conducting a large tobacco use surveillance effort targeted to members of a single immigrant group is that it then permits fairly "clean" evaluations of the impact of acculturation on tobacco use, relatively free of ethnic-specific cultural confounds. On the other hand, limiting the surveillance effort "only" to adults of Asian Indian ancestry hardly limits cultural, linguistic or religious heterogeneity, as was discussed in Chapter 2. The following chapter examines some of the cultural and religious correlates of tobacco use in this specific ethnic subgroup of Californians.

Effects of Acculturation on Conventional Tobacco Use

Previous literature has suggested a convergence in the prevalence of current smoking by the two sexes in acculturated compared to newly immigrant members of observed immigrant ethnic groups (e.g., Maxwell et al., in press; McCarthy et al., 2003; CDC, 2004). To test this proposition in the current sample, we contrasted observed prevalence rates for lifetime and current smoking in men and women grouped by self-assessed acculturation (see Table 4.1).

Relationships of Self-assessed Acculturation with Various Measures of Conventional Tobacco Use

Tables 4.1.1-4.1.7 describe the relationship between measures of conventional tobacco use and self-assessed acculturation, cross-tabulated by gender. The measures of conventional tobacco use include: lifetime tobacco use (at least 100 cigarettes), current tobacco use (everyday or some days in the last 30 days), lifetime cigar use, lifetime pipe use, lifetime use of chewing tobacco, and lifetime use of snuff. Based on apparent convergence of smoking prevalence rates between men and women in more acculturated members of immigrant ethnic groups (e.g., CDC, 2004), we predicted that Asian Indian women would be more prone to using tobacco products the more acculturated they were observed to be. For all conventional tobacco products examined, however, the group with consistently the lowest levels of conventional tobacco use were the twenty-eight women who had identified themselves as fully American. This was particularly surprising because the trend for all conventional tobacco products examined was for there to be increasing levels of use by women with increasing identification as American except for the final category, "Full American," when the trend completely reversed. Part of the explanation for this surprising reversal may be explained by the religious affiliation of the women in the "Full Indian" and "Full American" groups. In the "Full Indian" group, 70% of the respondents reported following the precepts of Hinduism. In the "Full American" group, only 29% were Hindus. On the other hand, Sikhs comprised 14% of the former group and 23% of the latter. Of all the religious adherents surveyed, the Sikhs were the most likely to report full agreement with the statement, "My religion discourages smoking." Hindus were significantly less likely than Sikhs to endorse the same statement ($p < .0001$).

Table 4.1.1 Any Lifetime Conventional Tobacco Use in Relation to Self-described Acculturation

Have you ever used cigarettes, smoked a pipe, a cigar, used chewing tobacco or snuff in your life?	Females		Males	
	No %	Yes %	No %	Yes %
Full Indian	90.3 [86.7,93.0]	9.7 [7.0,13.3]	58.6 [52.3,64.6]	41.4 [35.4,47.7]
Indian first, American second	88.5 [83.2,92.2]	11.5 [7.8,16.8]	59.7 [53.2,65.8]	40.3 [34.2,46.8]
Blend Indian and American	85.3 [82.2,87.8]	14.7 [12.2,17.8]	54.5 [50.8,58.3]	45.5 [41.7,49.2]
American first, Indian second	70.5 [57.2,81.0]	29.5 [19.0,42.8]	46.8 [37.9,55.9]	53.2 [44.1,62.1]
Full American	96.7 [79.9,99.5]	3.3 [0.5,20.1]	48.0 [38.2,57.9]	52.0 [42.1,61.8]

Design-based F(3.97, 12378.96) = 5.0330; p = 0.0005 (females)
Design-based F(3.97, 12392.08) = 2.0527; p = 0.0847 (males)
Cell entries are weighted percentages and 95% confidence intervals.

Table 4.1.2 Lifetime Tobacco Use Prevalence in Relation to Self-described Acculturation

Have you smoked at least 100 cigarettes in your life?	Females		Males	
	No %	Yes %	No %	Yes %
Full Indian	97.6 [95.4,98.8]	2.4 [1.2,4.6]	77.5 [71.8,82.4]	22.5 [17.6,28.2]
Indian first, American second	97.0 [93.5,98.6]	3.0 [1.4,6.5]	77.7 [72.3,82.4]	22.3 [17.6,27.7]
Blend Indian and American	95.2 [93.1,96.6]	4.8 [3.4,6.9]	74.6 [71.3,77.7]	25.4 [22.3,28.7]
American first, Indian second	94.0 [84.8,97.8]	6.0 [2.2,15.2]	70.4 [61.3,78.1]	29.6 [21.9,38.7]
Full American	100.0	0.0	75.2 [65.7,82.8]	24.8 [17.2,34.3]

Design-based F(3.94, 12288.14) = 1.52; p = 0.1940 (females)
Design-based F(3.96, 12348.02) = 0.77; p = 0.5422 (males)
Cell entries are weighted percentages and 95% confidence intervals.

Table 4.1.3 Current Tobacco Use Prevalence in Relation to Self-described Acculturation

Do you currently smoke every day or some days?	Females		Males	
	No %	Yes %	No %	Yes %
Full Indian	99.0 [96.8,99.7]	1.0 [0.3,3.2]	93.0 [88.5,95.8]	7.0 [4.2,11.5]
Indian first, American second	99.6 [97.1,99.9]	0.4 [0.1,2.9]	93.1 [89.3,95.6]	6.9 [4.4,10.7]
Blend Indian and American	97.4 [95.7,98.4]	2.6 [1.6,4.3]	91.0 [88.5,93.0]	9.0 [7.0,11.5]
American first, Indian second	98.2 [88.5,99.8]	1.8 [0.2,11.5]	87.2 [78.9,92.5]	12.8 [7.5,21.1]
Full American	100.0	0.0	91.1 [84.5,95.1]	8.9 [4.9,15.5]

Design-based F(3.89, 12132.50) = 1.63; p = 0.1663 (females)
Design-based F(3.83, 11927.31) = 1.04; p = 0.3820 (males)
*Note. Current smoker defined as smoking on some or all days in the past 30 days, and having smoked at least 100 cigarettes in lifetime.
Cell entries are weighted percentages and 95% confidence intervals.

Table 4.1.4 Lifetime Cigar Use Prevalence in Relation to Self-described Acculturation

Have you ever smoked a cigar, even just a few puffs? (Cigar=large cigar, cigarillo, or small cigar)	Females		Males	
	No %	Yes %	No %	Yes %
Full Indian	93.9 [90.8,96.0]	6.1 [4.0,9.2]	71.5 [65.5,76.8]	28.5 [23.2,34.5]
Indian first, American second	89.9 [84.8,93.5]	10.1 [6.5,15.2]	71.7 [65.5,77.1]	28.3 [22.9,34.5]
Blend Indian and American	89.4 [86.7,91.6]	10.6 [8.4,13.3]	63.9 [60.1,67.4]	36.1 [32.6,39.9]
American first, Indian second	75.7 [63.1,85.1]	24.3 [14.9,36.9]	53.0 [43.8,61.9]	47.0 [38.1,56.2]
Full American	100.0	0.0	57.8 [47.8,67.2]	42.2 [32.8,52.2]

Design-based F(3.97, 12366.94) = 5.18; p = 0.0004 (females)
Design-based F(3.97, 12372.81) = 4.72; p = 0.0009 (males)
Cell entries are weighted percentages and 95% confidence intervals.

Table 4.1.5 Lifetime Pipe Use Prevalence in Relation to Self-described Acculturation

Have you ever smoked a tobacco pipe?	Females		Males	
	Yes %	No %	Yes %	No %
Full Indian	0.6 [0.1,2.4]	99.4 [97.6,99.9]	3.7 [2.0,6.7]	96.3 [93.3,98.0]
Indian first, American second	1.8 [0.7,4.7]	98.2 [95.3,99.3]	10.3 [7.0,14.9]	89.7 [85.1,93.0]
Blend Indian and American	1.8 [1.1,3.1]	98.2 [96.9,98.9]	10.7 [8.7,13.2]	89.3 [86.8,91.3]
American first, Indian second	5.8 [1.8,17.2]	94.2 [82.8,98.2]	15.8 [10.2,23.6]	84.2 [76.4,89.8]
Full American	0.0	100.0	15.6 [9.9,23.7]	84.4 [76.3,90.1]

Design-based F(3.98, 12385.27) = 2.15; p = 0.0718 (females)
Design-based F(3.98, 12386.71) = 5.32; p = 0.0003 (males)
Cell entries are weighted percentages and 95% confidence intervals.

Table 4.1.6 Lifetime Chewing Use Prevalence in Relation to Self-described Acculturation

Have you ever used chewing tobacco such as Redmann, Levi Garrett, or Beechnut?	Females		Males	
	Yes %	No %	Yes %	No %
Full Indian	0.4 [0.1,1.5]	99.6 [98.5,99.9]	7.9 [5.0,12.1]	92.1 [87.9,95.0]
Indian first, American second	0.9 [0.3,2.8]	99.1 [97.2,99.7]	5.6 [3.0,10.0]	94.4 [90.0,97.0]
Blend Indian and American	1.6 [0.9,2.8]	98.4 [97.2,99.1]	7.2 [5.4,9.5]	92.8 [90.5,94.6]
American first, Indian second	4.6 [1.5,13.5]	95.4 [86.5,98.5]	5.8 [3.0,11.0]	94.2 [89.0,97.0]
Full American	3.3 [0.5,20.1]	96.7 [79.9,99.5]	6.5 [3.1,13.1]	93.5 [86.9,96.9]

Design-based F(3.97, 12371.65) = 2.71; p = 0.0288 (females)
Design-based F(3.84, 11974.18) = 0.34; p = 0.8467 (males)
Cell entries are weighted percentages and 95% confidence intervals.

Table 4.1.7 Lifetime Snuff Use Prevalence in Relation to Self-described Acculturation

Have you ever used snuff, such as Skoal, Skoal Bandits, or Copenhagen?				
	Females		Males	
	Yes %	No %	Yes %	No %
Full Indian	1.3 [0.5,3.2]	98.7 [96.8,99.5]	3.1 [1.5,6.1]	96.9 [93.9,98.5]
Indian first, American second	0.6 [0.2,2.7]	99.4 [97.3,99.8]	1.6 [0.7,3.6]	98.4 [96.4,99.3]
Blend Indian and American	1.1 [0.6,2.3]	98.9 [97.7,99.4]	5.0 [3.6,6.8]	95.0 [93.2,96.4]
American first, Indian second	0.0	100.0	2.6 [0.9,6.8]	97.4 [93.2,99.1]
Full American	0.0	100.0	3.4 [1.3,9.0]	96.6 [91.0,98.7]
Design-based F(3.93, 12236.10) = 0.36; p = 0.8352 (females) Design-based F(3.86, 12013.21) = 1.97; p = 0.0980 (males) Cell entries are weighted percentages and 95% confidence intervals.				

Relationships Between Duration of Residence in the United States and Various Measures of Conventional Tobacco Use

Tables 4.2.1-4.2.7 describe the relationship between measures of conventional tobacco use and duration of residence in the U.S. (percentage of life spent in the U.S.), cross-tabulated by gender. Use of percent of life spent in the U.S. as a marker of exposure to U.S. cultural practices was used in preference to using number of years spent in the U.S. as the marker of exposure.Inasmuch as percent of life spent in the U.S. gave implicit weight to the time spent exposed to Indian or other countries' cultural practices, use of percent of life spent in the U.S. seemed preferable to just counting the number of years spent in the U.S. It did not seem appropriate, for instance, to equate 21 years in the U.S. for the U.S.-born 21 year old to the 21 years in the U.S. for the India-born 42 year old. In any case, the pattern of results is the same for either marker of exposure, with the strongest dose-response relationship between duration of exposure to U.S. cultural practices and tobacco use observed for cigar use and no significant relationship between duration of exposure to U.S. cultural practices and tobacco use observed for chewing tobacco (data not shown). The measures of conventional tobacco use include: lifetime tobacco use (at least 100 cigarettes), current tobacco use (everyday or some days in the last 30 days), lifetime cigar use, lifetime pipe use, lifetime use of chewing tobacco, and lifetime use of snuff and a composite of all conventional tobacco use. The general pattern of results is described in Table 4.2.1. As percent of life spent in the U.S. increases, the odds of ever using a conventional tobacco product also increases, for both men and women. This general pattern is corroborated by the specific findings for cigar use and pipe use and partially corroborated for snuff (men only) and ever smoking cigarettes and current cigarette smoking (women only). This pattern was not corroborated for chewing tobacco.

Table 4.2.1 Any Lifetime Conventional Tobacco Use in Relation to Percent of Life Lived in the United States

Have you ever used cigarettes, smoked a pipe, a cigar, used chewing tobacco or snuff in your life?				
	Females		Males	
Percent of life lived in the United States*	No %	Yes %	No %	Yes %
0-19%	92.3 [89.6,94.3]	7.7 [5.7,10.4]	60.7 [56.0,65.3]	39.3 [34.7,44.0]
20-39%	91.2 [87.8,93.7]	8.8 [6.3,12.2]	63.4 [58.5,68.0]	36.6 [32.0,41.5]
40-59%	89.4 [84.2,93.0]	10.6 [7.0,15.8]	53.5 [48.0,59.0]	46.5 [41.0,52.0]
60-79%	81.4 [71.3,88.5]	18.6 [11.5,28.7]	37.9 [29.3,47.3]	62.1 [52.7,70.7]
80-100%	55.6 [40.1,70.0]	44.4 [30.0,59.9]	38.4 [24.0,55.2]	61.6 [44.8,76.0]

Design-based F(3.93, 11500.03) = 17.11; p < 0.0001 (females)
Design-based F(3.83, 11190.69) = 7.61; p < 0.0001 (males)
*Note. Those born in the United States were NOT included in these analyses.
Cell entries are weighted percentages and 95% confidence intervals.

Table 4.2.2 Lifetime Tobacco Use Prevalence in Relation to Percent of Life Lived in the United States

Have you smoked at least 100 cigarettes in your life?				
	Females		Males	
Percent of life lived in the United States*	No %	Yes %	No %	Yes %
0-19%	98.3 [96.7,99.1]	1.7 [0.9,3.3]	73.6 [69.3,77.6]	26.4 [22.4,30.7]
20-39%	97.5 [95.3,98.6]	2.5 [1.4,4.7]	80.2 [76.2,83.7]	19.8 [16.3,23.8]
40-59%	95.4 [91.2,97.6]	4.6 [2.4,8.8]	71.1 [65.8,75.8]	28.9 [24.2,34.2]
60-79%	97.3 [88.9,99.4]	2.7 [0.6,11.1]	68.5 [59.0,76.6]	31.5 [23.4,41.0]
80-100%	80.5 [65.8,89.9]	19.5 [10.1,34.2]	79.2 [62.1,89.8]	20.8 [10.2,37.9]

Design-based F(3.93, 11482.84) = 11.04; p < 0.0001 (females)
Design-based F(3.76, 10981.63) = 2.65; p = 0.0347 (males)
*Note. Those born in the United States were NOT included in these analyses.
Cell entries are weighted percentages and 95% confidence intervals.

Table 4.2.3 Current Tobacco Use Prevalence in Relation to Percent of Life Lived in the United States

Do you currently smoke every day or some days?				
	Females		Males	
Percent of life lived in the United States	No %	Yes %	No %	Yes %
0-19%	99.3 [98.0,99.7]	0.7 [0.3,2.0]	90.5 [87.2,93.0]	9.5 [7.0,12.8]
20-39%	98.6 [96.6,99.4]	1.4 [0.6,3.4]	92.7 [89.6,94.9]	7.3 [5.1,10.4]
40-59%	97.8 [93.8,99.2]	2.2 [0.8,6.2]	92.4 [88.9,94.9]	7.6 [5.1,11.1]
60-79%	100.0	0.0	88.7 [80.2,93.9]	11.3 [6.1,19.8]
80-100%	90.1 [76.2,96.3]	9.9 [3.7,23.8]	89.3 [73.7,96.1]	10.7 [3.9,26.3]

Design-based F(3.91, 11422.28) = 6.23; p = 0.0001 (females)
Design-based F(3.85, 11243.10) = 0.64; p = 0.6291 (males)
*Note. Current smoker defined as having smoked some or all days in the past 30 days and having smoked at least 100 cigarettes in lifetime.
Cell entries are weighted percentages and 95% confidence intervals.

Table 4.2.4 Lifetime Cigar Use Prevalence in Relation to Percent of Life Lived in the United States

Have you ever smoked a cigar, even just a few puffs? (Cigar=large cigar, cigarillo, or small cigar)				
	Females		Males	
Percent of life lived in the United States*	No %	Yes %	No %	Yes %
0-19%	94.8 [92.5,96.4]	5.2 [3.6,7.5]	76.9 [72.6,80.7]	23.1 [19.3,27.4]
20-39%	94.6 [91.6,96.5]	5.4 [3.5,8.4]	73.9 [69.3,78.1]	26.1 [21.9,30.7]
40-59%	93.6 [89.3,96.2]	6.4 [3.8,10.7]	62.3 [56.7,67.6]	37.7 [32.4,43.3]
60-79%	82.7 [72.6,89.6]	17.3 [10.4,27.4]	45.1 [36.0,54.6]	54.9 [45.4,64.0]
80-100%	66.4 [50.7,79.2]	33.6 [20.8,49.3]	38.4 [24.0,55.2]	61.6 [44.8,76.0]

Design-based F(3.93, 11474.92) = 16.23; p < 0.001 (females)
Design-based F(3.84, 11209.51) = 16.33; p < 0.001 (males)
Cell entries are weighted percentages and 95% confidence intervals.

Table 4.2.5 Lifetime Pipe Use Prevalence in Relation to Percent of Life Lived in the United States

Have you ever smoked a tobacco pipe?				
	Females		Males	
Percent of life lived in the United States*	No %	Yes %	No %	Yes %
0-19%	99.4 [98.1,99.8]	0.6 [0.2,1.9]	95.2 [93.1,96.7]	4.8 [3.3,6.9]
20-39%	99.3 [97.7,99.8]	0.7 [0.2,2.3]	95.0 [92.7,96.6]	5.0 [3.4,7.3]
40-59%	99.0 [95.8,99.8]	1.0 [0.2,4.2]	85.3 [80.9,88.9]	14.7 [11.1,19.1]
60-79%	100.0	0.0	72.1 [62.9,79.7]	27.9 [20.3,37.1]
80-100%	94.6 [83.9,98.3]	5.4 [1.7,16.1]	76.7 [60.5,87.6]	23.3 [12.4,39.5]

Design-based F(3.99, 11650.69) = 3.60; p = 0.0062 (females)
Design-based F(3.81, 11103.82) = 20.45;p < 0.001 (males)
Cell entries are weighted percentages and 95% confidence intervals.

Table 4.2.6 Lifetime Chewing Use Prevalence in Relation to Percent of Life Lived in the United States

Have you ever used chewing tobacco such as Redmann, Levi Garrett, or Beechnut?				
	Females		Males	
Percent of life lived in the United States*	No %	Yes %	No %	Yes %
0-19%	99.3 [98.2,99.7]	0.7 [0.3,1.8]	93.2 [90.3,95.3]	6.8 [4.7,9.7]
20-39%	99.0 [97.6,99.6]	1.0 [0.4,2.4]	93.3 [90.1,95.5]	6.7 [4.5,9.9]
40-59%	98.9 [96.6,99.6]	1.1 [0.4,3.4]	95.2 [91.6,97.3]	4.8 [2.7,8.4]
60-79%	99.2 [94.8,99.9]	0.8 [0.1,5.2]	92.7 [84.3,96.8]	7.3 [3.2,15.7]
80-100%	100.0	0.0	91.4 [78.2,97.0]	8.6 [3.0,21.8]

Design-based F(3.98, 11612.22) = 0.28; p = 0.8904 (females)
Design-based F(3.98, 11632.50) = 0.36; p = 0.8398 (males)
Cell entries are weighted percentages and 95% confidence intervals.

Table 4.2.7 Lifetime Snuff Use Prevalence in Relation to Percent of Life Lived in the United States

Have you ever used snuff, such as Skoal, Skoal Bandits, or Copenhagen?				
	Females		Males	
Percent of life lived in the United States*	No %	Yes %	No %	Yes %
0-19%	99.0 [97.5,99.6]	1.0 [0.4,2.5]	97.7 [95.7,98.8]	2.3 [1.2,4.3]
20-39%	99.0 [97.2,99.7]	1.0 [0.3,2.8]	97.9 [96.0,98.9]	2.1 [1.1,4.0]
40-59%	100.0	0.0	96.9 [94.3,98.4]	3.1 [1.6,5.7]
60-79%	99.5 [96.2,99.9]	0.5 [0.1,3.8]	93.1 [85.7,96.9]	6.9 [3.1,14.3]
80-100%	98.5 [90.3,99.8]	1.5 [0.2,9.7]	91.4 [78.2,97.0]	8.6 [3.0,21.8]
Design-based F(3.71, 10830.33) = 0.69; p= 0.5903 (females) Design-based F(3.94, 11502.48) = 2.94; p = 0.0199 (males) Cell entries are weighted percentages and 95% confidence intervals.				

Relationships Between Language of Interview and Various Measures of Conventional Tobacco Use

Tables 4.3.1 describe the relationship between measures of conventional tobacco use and language of interview, cross-tabulated by gender. The measures of conventional tobacco use include: lifetime tobacco use (at least 100 cigarettes), current tobacco use (everyday or some days in the last 30 days), lifetime cigar use, lifetime pipe use, lifetime use of chewing tobacco, and lifetime use of snuff and a composite of all conventional tobacco use. Table 4.3.1 captures the overall pattern that is partially corroborated by the more detailed follow-up tables. We had expected that those interviewees preferring to conduct the interviews in English would be more susceptible to conventional tobacco use than any of the interviewees preferring to conduct the interviews in an Indian language. The prediction turned out to be correct for Punjabi speakers but not for Hindi or Gujarati speakers.

Table 4.3.1 Any Lifetime Conventional Tobacco Use in Relation to Language of Interview

Have you ever used cigarettes, smoked a pipe, a cigar, used chewing tobacco or snuff in your life?				
	Females		Males	
Language of interview	No %	Yes %	No %	Yes %
English	85.1 [82.9,87.1]	14.9 [12.9,17.1]	53.0 [50.2,55.7]	47.0 [44.3,49.8]
Gujarati	87.5 [67.9,95.9]	12.5 [4.1,32.1]	60.6 [35.2,81.3]	39.4 [18.7,64.8]
Hindi	98.2 [88.1,99.7]	1.8 [0.3,11.9]	69.7 [56.0,80.5]	30.3 [19.5,44.0]
Punjabi	100.0	0.0	84.2 [73.5,91.1]	15.8 [8.9,26.5]
Design-based F(3.00, 9676.53) = 5.97; p = 0.0005 (females) Design-based F(2.92, 9428.59) = 11.74; p < 0.0001 (males) Cell entries are weighted percentages and 95% confidence intervals.				

Table 4.3.2 Lifetime Tobacco Use Prevalence in Relation to Language of Interview

Have you smoked at least 100 cigarettes in your life?				
	Females		Males	
Language of interview	No %	Yes %	No %	Yes %
English	95.4 [94.0,96.5]	4.6 [3.5,6.0]	74.6 [72.1,76.9]	25.4 [23.1,27.9]
Gujarati	100.0	0.0	60.6 [35.2,81.3]	39.4 [18.7,64.8]
Hindi	98.2 [88.1,99.7]	1.8 [0.3,11.9]	79.4 [66.9,88.0]	20.6 [12.0,33.1]
Punjabi	100.0	0.0	88.0 [77.2,94.1]	12.0 [5.9,22.8]

Design-based F(2.99, 9632.47) = 1.7833; p = 0.1482 (females)
Design-based F(2.85, 9172.93) = 3.1434; p = 0.0264 (males)
Cell entries are weighted percentages and 95% confidence intervals.

Table 4.3.3 Current Tobacco Use Prevalence in Relation to Language of Interview

Do you currently smoke every day or some days?				
	Females		Males	
Language of interview	No %	Yes %	No %	Yes %
English	97.8 [96.7,98.5]	2.2 [1.5,3.3]	91.0 [89.2,92.5]	9.0 [7.5,10.8]
Gujarati	100.0	0.0	90.5 [55.8,98.6]	9.5 [1.4,44.2]
Hindi	100.0	0.0	91.6 [82.1,96.3]	8.4 [3.7,17.9]
Punjabi	100.0	0.0	96.2 [86.2,99.0]	3.8 [1.0,13.8]

Design-based F(2.98, 9613.15) = 1.11; p = 0.3430 (females)
Design-based F(2.75, 8873.27) = 0.78; p = 0.4959 (males)
*Note. Current smoker defined as smoking on some or all days in the past 30 days and having smoked at least 100 cigarettes in lifetime.
Cell entries are weighted percentages and 95% confidence intervals.

Table 4.3.4 Lifetime Cigar Use Prevalence in Relation to Language of Interview

Have you ever smoked a cigar, even just a few puffs? (Cigar=large cigar, cigarillo, or small cigar)				
	Females		Males	
Language of interview	No %	Yes %	No %	Yes %
English	88.8 [86.8,90.5]	11.2 [9.5,13.2]	63.1 [60.4,65.7]	36.9 [34.3,39.6]
Gujarati	100.0	0.0	93.3 [64.6,99.1]	6.7 [0.9,35.4]
Hindi	100.0	0.0	92.0 [81.9,96.7]	8.0 [3.3,18.1]
Punjabi	100.0	0.0	93.4 [83.1,97.6]	6.6 [2.4,16.9]

Design-based F(2.97, 9575.30) = 6.19; p = 0.0004 (females)
Design-based F(2.74, 8832.80) =16.32; p < 0.001 (males)
Cell entries are weighted percentages and 95% confidence intervals.

Table 4.3.5 Lifetime Pipe Use Prevalence in Relation to Language of Interview

Have you ever smoked a tobacco pipe?				
	Females		Males	
Language of interview	No %	Yes %	No %	Yes %
English	98.2 [97.3,98.8]	1.8 [1.2,2.7]	89.2 [87.4,90.7]	10.8 [9.3,12.6]
Gujarati	100.0	0.0	93.3 [64.6,99.1]	6.7 [0.9,35.4]
Hindi	100.0	0.0	94.4 [83.1,98.3]	5.6 [1.7,16.9]
Punjabi	100.0	0.0	98.8 [91.7,99.8]	1.2 [0.2,8.3]

Design-based F(2.96, 9527.12) = 0.92; p = 0.4295 (females)
Design-based F(2.99, 9616.30) = 3.20; p = 0.0225 (males)
Cell entries are weighted percentages and 95% confidence intervals.

Table 4.3.6 Lifetime Chewing Use Prevalence in Relation to Language of Interview

Have you ever used chewing tobacco such as Redmann, Levi Garrett, or Beechnut?				
	Females		Males	
Language of interview	No %	Yes %	No %	Yes %
English	98.5 [97.7,99.0]	1.5 [1.0,2.3]	93.1 [91.5,94.4]	6.9 [5.6,8.5]
Gujarati	100.0	0.0	93.3 [64.6,99.1]	6.7 [0.9,35.4]
Hindi	100.0	0.0	87.5 [74.1,94.5]	12.5 [5.5,25.9]
Punjabi	100.0	0.0	94.2 [84.2,98.0]	5.8 [2.0,15.8]

Design-based F(2.90, 9363.43) = 0.84; p < 0.001 (females)
Design-based F(2.87, 9253.34) = 0.68; p = 0.5562 (males)
Cell entries are weighted percentages and 95% confidence intervals.

Table 4.3.7 Lifetime Snuff Use Prevalence in Relation to Language of Interview

Have you ever used snuff, such as Skoal, Skoal Bandits, or Copenhagen?				
	Females		Males	
Language of interview	No %	Yes %	No %	Yes %
English	99.2 [98.5,99.5]	0.8 [0.5,1.5]	96.0 [94.9,97.0]	4.0 [3.0,5.1]
Gujarati	87.5 [67.9,95.9]	12.5 [4.1,32.1]	87.3 [60.8,96.8]	12.7 [3.2,39.2]
Hindi	100.0	0.0	98.7 [91.2,99.8]	1.3 [0.2,8.8]
Punjabi	100.0	0.0	98.4 [89.4,99.8]	1.6 [0.2,10.6]

Design-based F(2.92, 9407.53) = 12.34; p < 0.0001 (females)
Design-based F(2.71, 8720.13) = 1.70; p = 0.1698 (males)
Cell entries are weighted percentages and 95% confidence intervals.

Relationships Between Choice of Primary Language and Various Measures of Conventional Tobacco Use

Tables 4.4.1-7 describe the relationship between measures of conventional tobacco use and primary language, cross-tabulated by gender. The measures of conventional tobacco use include: lifetime tobacco use (at least 100 cigarettes), current tobacco use (everyday or some days in the last 30 days), lifetime cigar use, lifetime pipe use, lifetime use of chewing tobacco, and lifetime use of snuff and a composite of all conventional tobacco use. The first table describes the generic pattern: both Asian Indian men and women are more likely to report ever having used conventional tobacco products if they said that their primary language was English, as expected from the greater access that residence in the U.S. to conventional tobacco products. This general pattern was corroborated specifically for cigars, for pipes (both sexes), for cigarettes, for chewing tobacco, for current smoking (women only), and for snuff (men only).

Table 4.4.1 Any Lifetime Conventional Tobacco Use, in Relation to Choice of Primary Language

Have you ever used cigarettes, smoked a pipe, a cigar, used chewing tobacco, or snuff in your life?				
	Females		Males	
Is English your primary language?	No %	Yes %	No %	Yes %
No	94.7 [92.7,96.1]	5.3 [3.9,7.3]	62.1 [58.2,65.9]	37.9 [34.1,41.8]
Yes	77.7 [74.2,80.8]	22.3 [19.2,25.8]	50.1 [46.6,53.6]	49.9 [46.4,53.4]

Design-based F(1, 3209) = 81.82; p <0.0001 (females)
Design-based F(1, 3209) = 19.88; p < 0.0001 (males)
Cell entries are weighted percentages and 95% confidence intervals.

Table 4.4.2 Lifetime Smoking Prevalence in Relation to Choice of Primary Language

Have you smoked at least 100 cigarettes in your life?				
	Females		Males	
Is English your primary language?	No %	Yes %	No %	Yes %
No	99.1 [97.8,99.6]	0.9 [0.4,2.2]	77.8 [74.5,80.9]	22.2 [19.1,25.5]
Yes	92.3 [89.9,94.2]	7.7 [5.8,10.1]	73.5 [70.4,76.5]	26.5 [23.5,29.6]

Design-based F(1, 3206) = 29.9756; p < 0.001 (females)
Design-based F(1, 3206) = 3.5735; p = 0.0588 (males)
Cell entries are weighted percentages and 95% confidence intervals.

Table 4.4.3 Current Tobacco Use Prevalence in Relation to Choice of Primary Language

Do you currently smoke every day or some days?				
	Females		Males	
Is English your primary language?	No %	Yes %	No %	Yes %
No	99.4 [98.1,99.8]	0.6 [0.2,1.9]	92.5 [90.2,94.3]	7.5 [5.7,9.8]
Yes	96.6 [94.8,97.8]	3.4 [2.2,5.2]	90.6 [88.2,92.5]	9.4 [7.5,11.8]

Design-based F(1, 3204) = 9.99; p = 0.0016 (females)
Design-based F(1, 3204) = 1.58; p = 0.2095 (males)
*Note. Current smoker defined as having smoked on some or all days of last 30 days and having smoked at least 100 cigarettes in lifetime.
Cell entries are weighted percentages and 95% confidence intervals.

Table 4.4.4 Lifetime Cigar Use Prevalence in Relation to Choice of Primary Language

Have you ever smoked a cigar, even just a few puffs? (Cigar=large cigar, cigarillo, or small cigar)				
	Females		Males	
Is English your primary language?	No %	Yes %	No %	Yes %
No	96.4 [94.7,97.5]	3.6 [2.5,5.3]	76.3 [72.7,79.6]	23.7 [20.4,27.3]
Yes	83.4 [80.2,86.1]	16.6 [13.9,19.8]	58.2 [54.7,61.6]	41.8 [38.4,45.3]
Design-based F(1, 3204) = 62.62; p < 0.0001 (females) Design-based F(1, 3204) = 48.79; p < 0.0001 (males) Cell entries are weighted percentages and 95% confidence intervals.				

Table 4.4.5 Lifetime Pipe Use Prevalence in Relation to Choice of Primary Language

Have you ever smoked a tobacco pipe?				
	Females		Males	
Is English your primary language?	No %	Yes %	No %	Yes %
No	99.6 [98.8,99.8]	0.4 [0.2,1.2]	94.2 [92.2,95.7]	5.8 [4.3,7.8]
Yes	97.3 [95.7,98.3]	2.7 [1.7,4.3]	86.6 [84.1,88.7]	13.4 [11.3,15.9]
Design-based F(1, 3203) = 13.63; p = 0.0002 (females) Design-based F(1, 3203) = 24.64; p < 0.0001 (males) Cell entries are weighted percentages and 95% confidence intervals.				

Table 4.4.6 Lifetime Chewing Use Prevalence in Relation to Choice of Primary Language

Have you ever used chewing tobacco such as Redmann, Levi Garrett, or Beechnut?				
	Females		Males	
Is English your primary language?	No %	Yes %	No %	Yes %
No	99.4 [98.6,99.7]	0.6 [0.3,1.4]	91.9 [89.2,94.0]	8.1 [6.0,10.8]
Yes	97.9 [96.5,98.7]	2.1 [1.3,3.5]	93.7 [91.8,95.2]	6.3 [4.8,8.2]
Design-based F(1, 3207) = 7.75; p = 0.0054 (females) Design-based F(1, 3207) = 1.48; p = 0.2242 (males) Cell entries are weighted percentages and 95% confidence intervals.				

Table 4.4.7 Lifetime Snuff Use Prevalence in Relation to Choice of Primary Language

Have you ever used snuff, such as Skoal, Skoal Bandits, or Copenhagen?				
	Females		Males	
Is English your primary language?	No %	Yes %	No %	Yes %
No	99.1 [98.0,99.6]	0.9 [0.4,2.0]	97.7 [96.1,98.6]	2.3 [1.4,3.9]
Yes	98.8 [97.7,99.4]	1.2 [0.6,2.3]	95.1 [93.4,96.4]	4.9 [3.6,6.6]
Design-based F(1, 3200) = 0.21; p = 0.6469 (females) Design-based F(1, 3200) = 6.39; p = 0.0115 (males) Cell entries are weighted percentages and 95% confidence intervals.				

Relationships Between Respondent's Status as Born in a Western Country or Not and Various Measures of Conventional Tobacco Use

Tables 4.5.1-7 describe the relationship between measures of conventional tobacco use and whether the respondent was born in a western country or non-western country, cross-tabulated by gender. Use of the term "western" is generally understood to include the Roman Catholic and Protestant nations of western Europe, and the areas they later settled such as North America, Latin America, and Australia. The measures of conventional tobacco use include: lifetime tobacco use (at least 100 cigarettes), current tobacco use (everyday or some days in the last 30 days), lifetime cigar use, lifetime pipe use, lifetime use of chewing tobacco, and lifetime use of snuff and a composite of all conventional tobacco use. As a composite of the single outcomes described in the follow-up tables, Table 4.5.1 describes the general finding. Because western countries usually provide more opportunities to use conventional tobacco products than non-western countries, we expected that men and women born in a western country were more likely to report ever engaging in conventional tobacco use. For current smoking, however, this pattern was observed only for women and was confirmed for cigar use, chewing tobacco, and use of snuff (Tables 4.5.2, 4.5.7).

Table 4.5.1 Any Lifetime Conventional Tobacco Use, in Relation to Whether Born in Western Country

Have you ever used cigarettes, smoked a pipe, a cigar, used chewing tobacco, or snuff in your life?				
	Females		Males	
Was born in western country	No %	Yes %	No %	Yes %
Not western born	90.4 [88.5,92.0]	6 [8.0,11.5]	57.9 [55.2,60.6]	42.1 [39.4,44.8]
Western born	61.1 [53.1,68.5]	38.9 [31.5,46.9]	33.3 [25.8,41.8]	66.7 [58.2,74.2]

Design-based F(1, 3153) = 100.21; p < 0.0001 (females)
Design-based F(1, 3153) = 29.13; p < 0.0001 (males)
Cell entries are weighted percentages and 95% confidence intervals.

Table 4.5.2 Lifetime Tobacco Use Prevalence in Relation to Whether Born in Western Country

Have you smoked at least 100 cigarettes in your life?				
	Females		Males	
Was born in western country	No %	Yes %	No %	Yes %
Not western born	96.9 [95.6,97.8]	3.1 [2.2,4.4]	74.9 [72.4,77.2]	25.1 [22.8,27.6]
Western born	90.7 [85.3,94.3]	9.3 [5.7,14.7]	80.0 [72.4,85.9]	20.0 [14.1,27.6]

Design-based F(1, 3150) = 14.50; p = 0.0001 (females)
Design-based F(1, 3150) = 1.74; p = 0.1876 (males)
Cell entries are weighted percentages and 95% confidence intervals.

Table 4.5.3 Current Tobacco Use Prevalence in Relation to Whether Born in Western Country

Do you currently smoke every day or some days?				
	Females		Males	
Was born in western country	No %	Yes %	No %	Yes %
Not western born	98.7 [97.7,99.2]	1.3 [0.8,2.3]	91.5 [89.7,92.9]	8.5 [7.1,10.3]
Western born	95.3 [90.8,97.6]	4.7 [2.4,9.2]	91.0 [84.4,94.9]	9.0 [5.1,15.6]

Design-based F(1, 3148) = 9.23; p = 0.0024 (females)
Design-based F(1, 3148) = 0.04; p = 0.8454 (males)
*Note. Current smoker is defined as having smoked on some days or every day in the past 30 days and having smoked at least 100 cigarettes in lifetime.
Cell entries are weighted percentages and 95% confidence intervals.

Table 4.5.4 Lifetime Cigar Use Prevalence in Relation to Whether Born in Western Country

Have you ever smoked a cigar, even just a few puffs? (Cigar=large cigar, cigarillo, or small cigar)				
	Females		Males	
Was born in western country	No %	Yes %	No %	Yes %
Not western born	93.2 [91.5,94.6]	6.8 [5.4,8.5]	69.3 [66.6,71.8]	30.7 [28.2,33.4]
Western born	68.0 [60.1,74.9]	32.0 [25.1,39.9]	35.4 [27.7,43.9]	64.6 [56.1,72.3]

Design-based F(1, 3148) = 94.75; p < 0.0001 (females)
Design-based F(1, 3148) = 61.22; p < 0.0001 (males)
Cell entries are weighted percentages and 95% confidence intervals.

Table 4.5.5 Lifetime Pipe Use Prevalence in Relation to Whether Born in Western Country

Have you ever smoked a tobacco pipe?				
	Females		Males	
Was born in western country	No %	Yes %	No %	Yes %
Not western born	99.3 [98.6,99.6]	0.7 [0.4,1.4]	90.8 [89.2,92.2]	9.2 [7.8,10.8]
Western born	91.7 [86.1,95.1]	8.3 [4.9,13.9]	82.7 [75.4,88.2]	17.3 [11.8,24.6]

Design-based F(1, 3147) = 49.86; p < 0.0001 (females)
Design-based F(1, 3147) = 8.93; p = 0.0028 (males)
Cell entries are weighted percentages and 95% confidence intervals.

Table 4.5.6 Lifetime Chewing Use Prevalence in Relation to Whether Born in Western Country

Have you ever used chewing tobacco such as Redmann, Levi Garrett, or Beechnut?				
	Females		Males	
Was born in western country	No %	Yes %	No %	Yes %
Not western born	99.2 [98.6,99.5]	0.8 [0.5,1.4]	94.1 [92.5,95.3]	5.9 [4.7,7.5]
Western born	94.7 [90.0,97.2]	5.3 [2.8,10.0]	84.2 [76.4,89.7]	15.8 [10.3,23.6]

Design-based F(1, 3151) = 25.31; p < 0.0001 (females)
Design-based F(1, 3151) = 16.20; p = 0.0001 (males)
Cell entries are weighted percentages and 95% confidence intervals.

Table 4.5.7 Lifetime Snuff Use Prevalence in Relation to Whether Born in Western Country

Have you ever used snuff, such as Skoal, Skoal Bandits, or Copenhagen?				
	Females		Males	
Was born in western country	No %	Yes %	No %	Yes %
Not western born	99.3 [98.6,99.7]	0.7 [0.3,1.4]	97.3 [96.2,98.0]	2.7 [2.0,3.8]
Western born	96.1 [91.4,98.3]	3.9 [1.7,8.6]	84.6 [77.4,89.9]	15.4 [10.1,22.6]

Design-based F(1, 3145) = 13.23; p = 0.0003 (females)
Design-based F(1, 3145) = 50.70; p < 0.0001 (males)
Cell entries are weighted percentages and 95% confidence intervals.

Effects of Acculturation on Asian Indian-specific Tobacco Use

Some of the observed differences in conventional tobacco use between first generation and later generation Asian Indians living in California may simply reflect a change in the type of tobacco product used and may not reflect changes in risk of any kind of tobacco use. In other words, those who in an earlier generation might have used Asian Indian-specific tobacco products may be the ones who are now using tobacco products conventionally used in the U.S. But then this would assume, for instance, that the higher rates of smoking observed in second-plus generation women reflect higher rates of Asian Indian-specific tobacco use among women in the first generation. We replicate below the comparisons reviewed above, to see if the expected findings by sex are observed inter-generationally. We first contrasted observed prevalence rates for Asian Indian-specific tobacco use in men and women grouped by self-assessed acculturation.

Relationships Between Self-described Acculturation Status and Various Measures of Asian Indian-specific Tobacco Use

Tables 4.6.1-4 describe the relationship between measures of Asian Indian-specific tobacco use and self-assessed acculturation, cross-tabulated by gender. The measures of Asian Indian-specific tobacco use include: lifetime bidi tobacco use, lifetime paan with tobacco use (e.g., kathi, zarda use), lifetime gutka use, and a composite measure of any Asian Indian-specific tobacco use. Only for the first table, with a composite measure of ever use of Asian Indian tobacco products, was a significant pattern observed for both men and women. As expected, men and women who self-described themselves as fully American were significantly less likely to use Asian Indian-specific tobacco products. None of the follow-up tables showed significant patterns.

Table 4.6.1 Any Lifetime Asian-Indian Tobacco Use in Relation to Self-described Acculturation

Have you ever smoked bidis, chewed paan with tobacco, or chewed gutka?				
	Females		Males	
Self-defined acculturation status	No %	Yes %	No %	Yes %
Full Indian	41.1 [36.1,46.4]	58.9 [53.6,63.9]	34.3 [28.6,40.5]	65.7 [59.5,71.4]
Indian first, American second	46.3 [39.3,53.5]	53.7 [46.5,60.7]	30.1 [24.5,36.4]	69.9 [63.6,75.5]
Blend Indian and American	42.1 [38.2,46.1]	57.9 [53.9,61.8]	33.7 [30.3,37.3]	66.3 [62.7,69.7]
American first, Indian second	51.7 [38.3,64.9]	48.3 [35.1,61.7]	48.1 [39.1,57.2]	51.9 [42.8,60.9]
Full American	66.9 [47.6,81.7]	33.1 [18.3,52.4]	50.5 [40.6,60.3]	49.5 [39.7,59.4]

Design-based F(3.98, 12417.46) = 2.24; p = 0.0629 (females)
Design-based F(3.97, 12396.92) = 5.02; p = 0.0005 (males)
Cell entries are weighted percentages and 95% confidence intervals.

Table 4.6.2 Lifetime Smoking of at Least 100 Bidis in Relation to Self-described Acculturation

Have you ever smoked 100 bidis in lifetime?				
	Females		Males	
Self-defined acculturation status	No %	Yes %	No %	Yes %
Full Indian	100.0	0.0	96.8 [94.4,98.2]	3.2 [1.8,5.6]
Indian first, American second	100.0	0.0	97.2 [94.4,98.6]	2.8 [1.4,5.6]
Blend Indian and American	99.5 [98.3,99.8]	0.5 [0.2,1.7]	95.2 [93.5,96.4]	4.8 [3.6,6.5]
American first, Indian second	100.0	0.0	93.7 [86.9,97.1]	6.3 [2.9,13.1]
Full American	100.0	0.0	96.8 [91.7,98.8]	3.2 [1.2,8.3]

Design-based F(3.96, 12339.07) = 0.78; p = 0.5372 (females)
Design-based F(3.91, 12181.41) = 1.14; p = 0.3341 (males)
Cell entries are weighted percentages and 95% confidence intervals.

Table 4.6.3 Lifetime Chewing of Paan with Tobacco, in Relation to Self-described Acculturation

Have you ever chewed paan with tobacco?				
	Females		Males	
Self-defined acculturation status	No %	Yes %	No %	Yes %
Full Indian	85.3 [68.9,93.8]	14.7 [6.2,31.1]	95.9 [93.5,97.5]	4.1 [2.5,6.5]
Indian first, American second	92.8 [81.9,97.4]	7.2 [2.6,18.1]	98.9 [97.2,99.6]	1.1 [0.4,2.8]
Blend Indian and American	89.5 [82.6,93.8]	10.5 [6.2,17.4]	95.7 [93.9,97.0]	4.3 [3.0,6.1]
American first, Indian second	76.3 [43.6,93.0]	23.7 [7.0,56.4]	97.3 [83.2,99.6]	2.7 [0.4,16.8]
Full American	100.0	0.0	94.2 [79.0,98.6]	5.8 [1.4,21.0]
Design-based F(3.93, 1580.61) = 0.39; p = 0.8092 (females) Design-based F(3.77, 1516.39) = 0.92; p = 0.4448 (males) Cell entries are weighted percentages and 95% confidence intervals.				

Table 4.6.4 Lifetime Use of Gutka, in Relation to Self-described Acculturation

Have you ever chewed gutka?				
	Females		Males	
Self-defined acculturation status	No %	Yes %	No %	Yes %
Full Indian	95.9 [93.5,97.5]	4.1 [2.5,6.5]	86.8 [81.7,90.7]	13.2 [9.3,18.3]
Indian first, American second	98.9 [97.2,99.6]	1.1 [0.4,2.8]	88.9 [83.8,92.5]	11.1 [7.5,16.2]
Blend Indian and American	95.7 [93.9,97.0]	4.3 [3.0,6.1]	89.8 [87.1,92.0]	10.2 [8.0,12.9]
American first, Indian second	97.3 [83.2,99.6]	2.7 [0.4,16.8]	90.7 [84.4,94.6]	9.3 [5.4,15.6]
Full American	94.2 [79.0,98.6]	5.8 [1.4,21.0]	96.7 [91.3,98.8]	3.3 [1.2,8.7]
Design-based F(3.70, 11476.70) = 1.49; p = 0.2066 (females) Design-based F(3.84, 11941.86) = 1.80; p = 0.1270 (males) Cell entries are weighted percentages and 95% confidence intervals.				

Relationship Between Duration of Residence in the United States and Any Lifetime Asian Indian Tobacco Use

Table 4.7.1 describes the relationship between any lifetime Asian Indian tobacco use and duration of residence in the U.S. (percent of life spent in the U.S.), cross-tabulated by gender. The pattern in Table 4.7.1 showed a decreasing use of Asian Indian-specific tobacco products with increasing percent of life spent in the U.S. for California Asian Indian women. No pattern was observed for the men.

Other, more specific measures of Asian Indian-specific tobacco use included: lifetime bidi tobacco use, lifetime paan with tobacco use (e.g., kathi, zarda use), and lifetime gutka use. Small sample sizes of users of these specific Asian Indian tobacco products made it difficult to discern any readily interpretable patterns of use in relation to duration of residence in the U.S. (data not shown).

Table 4.7.1 Any Lifetime Asian Indian Tobacco Use in Relation to Percent of Life Lived in the United States

Have you ever smoked bidis, chewed paan with tobacco, or chewed gutka?				
	Females		Males	
Percent of life lived in the United States*	No %	Yes %	No %	Yes %
0-19% of life	49.6 [45.1,54.1]	50.4 [45.9,54.9]	32.3 [28.1,36.8]	67.7 [63.2,71.9]
20-39% of life	43.6 [38.5,48.9]	56.4 [51.1,61.5]	38.7 [34.0,43.6]	61.3 [56.4,66.0]
40-59% of life	35.2 [28.1,43.1]	64.8 [56.9,71.9]	31.2 [26.3,36.5]	68.8 [63.5,73.7]
60-79% of life	32.6 [22.5,44.6]	67.4 [55.4,77.5]	24.1 [17.0,33.0]	75.9 [67.0,83.0]
80-100% of life	29.5 [17.8,44.6]	70.5 [55.4,82.2]	44.6 [29.4,61.0]	55.4 [39.0,70.6]

Design-based F(3.97, 11605.29) = 4.38; p = 0.0016 (females)
Design-based F(3.82, 11164.92) = 3.00; p = 0.0192 (males)
*Note. Those born in the United States were NOT included in these analyses
Cell entries are weighted percentages and 95% confidence intervals.

Relationship Between Language of Interview and Any Lifetime Asian Indian Tobacco Use

Table 4.8.1 describes the relationship between any lifetime Asian Indian tobacco use in relation to language of interview, cross-tabulated by gender. Those interviewees who preferred to conduct the interview in Punjabi were less likely to have ever smoked bidis, chewed paan with tobacco, or chewed gutka, perhaps because Punjabi-speaking interviewees were disproportionately likely to be Sikhs, who are most commonly found in the state of Punjab in India. Analyses of the relationship of language of interview with any single Asian Indian-specific tobacco product foundered on small cell sizes and are therefore ignored.

Table 4.8.1 Any Lifetime Asian Indian Tobacco Use in Relation to Language of Interview

Have you ever smoked bidis, chewed paan with tobacco, or chewed gutka?				
	Females		Males	
Language of interview	No %	Yes %	No %	Yes %
English	39.1 [36.2,42.0]	60.9 [58.0,63.8]	32.4 [29.8,35.0]	67.6 [65.0,70.2]
Gujarati	35.3 [20.3,53.9]	64.7 [46.1,79.7]	28.1 [10.9,55.4]	71.9 [44.6,89.1]
Hindi	63.9 [49.9,75.9]	36.1 [24.1,50.1]	59.7 [46.1,72.0]	40.3 [28.0,53.9]
Punjabi	90.2 [80.2,95.4]	9.8 [4.6,19.8]	73.1 [62.5,81.7]	26.9 [18.3,37.5]

Design-based $F(2.98, 9614.66) = 25.21$; $p < 0.0001$ (females)
Design-based $F(2.98, 9632.00) = 24.55$; $p < 0.0001$ (males)
Cell entries are weighted percentages and 95% confidence intervals.

Relationships Between Primary Language and Various Measures of Asian Indian-specific Tobacco Use

Tables 4.9.1-4 describe the relationship between measures of Asian Indian-specific tobacco use and primary language, cross-tabulated by gender. The measures of Asian Indian-specific tobacco use include: lifetime bidi tobacco use, lifetime paan with tobacco use (e.g., kathi, zarda use), lifetime gutka use, and a composite measure of any Asian Indian-specific tobacco use. English language usage may be more a reflection of higher social class in Californians of Asian Indian ancestry than it is a marker of "westernization" as originally predicted. That might explain why Asian Indian women reporting English as their primary language were more likely to report having used an Asian Indian-specific tobacco product than women whose primary language was not English. We might speculate also that English language preference may reflect a more secular education than does preference for, say Punjabi.

Table 4.9.1 Any Lifetime Asian Indian Tobacco Use, in Relation to Choice of Primary Language

Have you ever smoked bidis, chewed paan with tobacco, or chewed gutka?				
	Females		Males	
Is English your primary language?	No %	Yes %	No %	Yes %
No	49.6 [45.7,53.5]	50.4 [46.5,54.3]	37.9 [34.2,41.8]	62.1 [58.2,65.8]
Yes	36.5 [32.7,40.4]	63.5 [59.6,67.3]	33.8 [30.5,37.2]	66.2 [62.8,69.5]

Design-based $F(1, 3209) = 21.40$; $p < 0.0001$ (females)
Design-based $F(1, 3209) = 2.61$; $p = 0.1060$ (males)
Cell entries are weighted percentages and 95% confidence intervals.

Table 4.9.2 Lifetime Bidi Tobacco Use, in Relation to Choice of Primary Language

Have you smoked at least 100 bidis in your life?				
	Females		Males	
Is English your primary language?	No %	Yes %	No %	Yes %
No	100.0	0.0	95.0 [93.1,96.4]	5.0 [3.6,6.9]
Yes	99.5 [98.2,99.8]	0.5 [0.2,1.8]	96.5 [95.1,97.5]	3.5 [2.5,4.9]

Design-based F(1, 3204) = 3.01; p = 0.0827 (females)
Design-based F(1, 3204) = 2.28; p = 0.1313 (males)
Cell entries are weighted percentages and 95% confidence intervals.

Table 4.9.3 Lifetime Use of Paan with Tobacco, in Relation to Choice of Primary Language

Have you ever chewed paan with tobacco?				
	Females		Males	
Is English your primary language?	No %	Yes %	No %	Yes %
No	97.2 [91.4,99.1]	2.8 [0.9,8.6]	89.1 [80.5,94.1]	10.9 [5.9,19.5]
Yes	93.8 [86.8,97.2]	6.2 [2.8,13.2]	89.1 [81.5,93.8]	10.9 [6.2,18.5]

Design-based F(1, 405) = 1.33; p = 0.2488 (females)
Design-based F(1, 405) = 0.0001; p = 0.9909 (males)
Cell entries are weighted percentages and 95% confidence intervals.

Table 4.9.4 Lifetime Gutka Use, in Relation to Choice of Primary Language

Have you ever chewed gutka?				
	Females		Males	
Is English your primary language?	No %	Yes %	No %	Yes %
No	96.7 [95.2,97.7]	3.3 [2.3,4.8]	88.8 [85.9,91.1]	11.2 [8.9,14.1]
Yes	95.9 [94.0,97.2]	4.1 [2.8,6.0]	90.0 [87.5,92.0]	10.0 [8.0,12.5]

Design-based F(1, 3193) = 1.44; p = 0.6588 (females)
Design-based F(1, 3193) = 0.46; p = 0.4977 (males)
Cell entries are weighted percentages and 95% confidence intervals.

Relationships Between Whether the Respondent was Born in a Western Country and Various Measures of Asian Indian-specific Tobacco Use

Tables 4.10.1-4 describe the relationship between measures of Asian Indian-specific tobacco use and whether the respondent was born in a western country or non-western country, cross-tabulated by gender. The measures of Asian Indian-specific tobacco use include: lifetime bidi tobacco use, lifetime paan with tobacco use (e.g., kathi, zarda use), lifetime gutka use, and a composite measure of any Asian Indian-specific tobacco use. The first table uses the composite outcome, "any lifetime Asian Indian tobacco use," and hence should be able to stand for the more detailed findings in Tables 4.10.2-4 that follow. Being born in a western country has little impact for California Asian Indian women on their likelihood of ever smoking bidis, chewing paan with tobacco, or chewing gutka. There is an effect for the men. As would be expected by their reduced access to Asian Indian-specific tobacco products, men born and raised in western countries were less likely to have ever used an Asian Indian tobacco product. In the follow-up tables, this composite effect appeared to reflect a similar pattern observed for gutka use only. There was no similar pattern observed for chewing paan or smoking bidis.

Table 4.10.1 Any lifetime Asian Indian Tobacco Use, in Relation to Whether Born in Western Country

Have you ever smoked bidis, chewed paan with tobacco, or chewed gutka?				
	Females		Males	
Was born in western country	No %	Yes %	No %	Yes %
Not western born	42.9 [39.9,45.9]	57.1 [54.1,60.1]	34.0 [31.5,36.7]	66.0 [63.3,68.5]
Western born	44.9 [37.2,52.8]	55.1 [47.2,62.8]	48.9 [40.5,57.3]	51.1 [42.7,59.5]

Design-based F(1, 3153) = 0.22; p = 0.6397 (females)
Design-based F(1, 3153) = 11.51; p = 0.0007 (males)
Cell entries are weighted percentages and 95% confidence intervals.

Table 4.10.2 Lifetime Bidi Tobacco Use, in Relation to Whether Born in Western Country

Have you smoked at least 100 bidis in your life?				
	Females		Males	
Was born in western country	No %	Yes %	No %	Yes %
Not western born	99.9 [99.0,100.0]	0.1 [0.0,1.0]	95.6 [94.4,96.5]	4.4 [3.5,5.6]
Western born	98.8 [95.4,99.7]	1.2 [0.3,4.6]	98.6 [94.7,99.7]	1.4 [0.3,5.3]

Design-based F(1, 3148) = 4.25; p = 0.0393 (females)
Design-based F(1, 3148) = 3.21; p = 0.0734 (males)
Cell entries are weighted percentages and 95% confidence intervals.

Table 4.10.3 Lifetime Use of Paan with Tobacco, in Relation to Whether Born in Western Country

Did you ever use paan with tobacco?				
	Females		Males	
Was born in western country	No %	Yes %	No %	Yes %
Not western born	95.4 [91.3,97.6]	4.6 [2.4,8.7]	88.7 [83.2,92.6]	11.3 [7.4,16.8]
Western born	100.0	0.0	86.3 [43.3,98.1]	13.7 [1.9,56.7]

Design-based F(1, 402) = 0.29; p = 0.5895 (females)
Design-based F(1, 402) = 0.04; p = 0.8400 (males)
*Note. Asked only of those respondents who reported having smoked 100 cigarettes in lifetime.
Cell entries are weighted percentages and 95% confidence intervals.

Table 4.10.4 Lifetime Gutka Use, in Relation to Whether Born in Western Country

Have you ever chewed gutka?				
	Females		Males	
Was born in western country	No %	Yes %	No %	Yes %
Not western born	96.3 [95.1,97.2]	3.7 [2.8,4.9]	89.5 [87.6,91.2]	10.5 [8.8,12.4]
Western born	97.3 [93.6,98.9]	2.7 [1.1,6.4]	92.7 [87.2,95.9]	7.3 [4.1,12.8]

Design-based F(1, 3138) = 0.44; p = 0.5065 (females)
Design-based F(1, 3138) = 1.45; p = 0.2289 (males)
Cell entries are weighted percentages and 95% confidence intervals.

Relationships Between Use of Paan/Paan Masala With or Without Tobacco Use, and Various Measures of Acculturation

Tables 4.11.1-5 describe the relationship between use of paan/paan masala with or without tobacco use, and measures of acculturation. The measures of acculturation include: self-assessed acculturation, duration of residence in the U.S. (percent of life spent in the U.S.), language used in interview, primary language in home, and born in western or non-western country.

If paan does not include tobacco, why should we be concerned about influences on its use? Well, there is increasing evidence that the tendu leaf used to make the paan and the betel nut that makes up the paan can be carcinogenic in their own right (Merchant et al., 2000). Moreover tobacco companies have a vested interest in using paan as a Trojan horse, that is, as a vehicle for slipping in occasional tobacco content. Paan-containing tobacco is more acceptable to many women in India who otherwise would not use any tobacco.

The overall pattern of findings for the effects of acculturation on paan use are inconsistent with what was previously observed for tobacco-containing India-specific products. Ever use of paan was lower for those Asian Indian men and women who saw themselves as full-fledged "Americans" compared to those who viewed themselves either as a blend or as full-fledged "Indians." Differential access to paan products is the easy explanation for this finding. However, there was no relationship between percent of life lived in the U.S. and paan use for the men.

Some of the findings for the women appear to be most parsimoniously explained by the preponderance of Sikhism adherents among Punjabis. When language of interview was used as the index of acculturation, those who preferred Punjabi were significantly less likely than those preferring English or Gujarati and marginally less likely than those preferring Hindi to have ever

used paan, perhaps a reflection of the fact that Sikhs are disproportionately Punjabi-speaking and frown on all intoxicants, whether they stem from nicotine or betel nut. Interestingly, women who said that their primary language was English were more likely to have ever used paan, but this may be an artifact of education. Paan use increased with education, as did knowledge of English. Similarly, the women who had lived the greatest percent of their lives in the U.S. were more likely to have used paan than the women who had spent the smallest fraction of their life in the U.S. This too, could be an artifact of educational attainment inasmuch as educational attainment was higher in those with longer sojourns in the U.S.
(r = .05; p = .004).

Table 4.11.1 Lifetime Chewing of Paan With or Without Tobacco, in Relation to Self-described Acculturation

Have you ever chewed paan with or without tobacco?				
	Females		Males	
Self-defined acculturation status	No %	Yes %	No %	Yes %
Full Indian	42.6 [37.5,47.8]	57.4 [52.2,62.5]	35.1 [29.4,41.4]	64.9 [58.6,70.6]
Indian first, American second	46.3 [39.3,53.5]	53.7 [46.5,60.7]	30.8 [25.1,37.1]	69.2 [62.9,74.9]
Blend Indian and American	42.3 [38.3,46.3]	57.7 [53.7,61.7]	34.7 [31.2,38.4]	65.3 [61.6,68.8]
American first, Indian second	54.4 [40.9,67.3]	45.6 [32.7,59.1]	51.5 [41.6,61.3]	48.5 [38.7,58.4]
Full American	66.9 [47.6,81.7]	33.1 [18.3,52.4]	36.5 [33.9,39.1]	63.5 [60.9,66.1]
Design-based F(3.98, 12405.71) = 2.26; p = 0.0602 (females) Design-based F(3.97, 12377.50) = 5.74; p < 0.0001 (males) Cell entries are weighted percentages and 95% confidence intervals.				

Table 4.11.2 Lifetime Use of Paan With or Without Tobacco, in Relation to Percent of Life Lived in the United States

Have you used paan with or without tobacco?				
	Females		Males	
Percent of life lived in the United States	No %	Yes %	No %	Yes %
0-19% of life	50.7 [46.2,55.2]	49.3 [44.8,53.8]	33.1 [28.9,37.6]	66.9 [62.4,71.1]
20-39% of life	44.3 [39.2,49.5]	55.7 [50.5,60.8]	40.0 [35.3,44.9]	60.0 [55.1,64.7]
40-59% of life	35.2 [28.1,43.1]	64.8 [56.9,71.9]	32.1 [27.2,37.4]	67.9 [62.6,72.8]
60-79% of life	32.6 [22.5,44.6]	67.4 [55.4,77.5]	24.1 [17.0,33.0]	75.9 [67.0,83.0]
80-100% of life	29.5 [17.8,44.6]	70.5 [55.4,82.2]	47.7 [32.1,63.8]	52.3 [36.2,67.9]

Design-based F(3.97, 11592.32) = 4.96; p = 0.0006 (females)
Design-based F(3.82, 11169.14) = 3.63; p = 0.0067 (males)
*Note. Asked only of those respondents who reported having smoked 100 cigarettes in lifetime.
Cell entries are weighted percentages and 95% confidence intervals.

Table 4.11.3 Lifetime Use of Paan with Tobacco, in Relation to Language of Interview

Did you ever chew paan with or without tobacco?				
	Females		Males	
Language of interview	No %	Yes %	No %	Yes %
English	39.6 [36.7,42.5]	60.4 [57.5,63.3]	33.5 [30.9,36.1]	66.5 [63.9,69.1]
Gujarati	35.3 [20.3,53.9]	64.7 [46.1,79.7]	28.1 [10.9,55.4]	71.9 [44.6,89.1]
Hindi	66.3 [52.1,78.0]	33.7 [22.0,47.9]	62.5 [49.0,74.3]	37.5 [25.7,51.0]
Punjabi	90.2 [80.2,95.4]	9.8 [4.6,19.8]	73.1 [62.5,81.7]	26.9 [18.3,37.5]

Design-based F(2.97, 9585.49) = 25.09; p < 0.0001 (females)
Design-based F(2.98, 9613.21) = 23.89; p < 0.0001 (males)
Cell entries are weighted percentages and 95% confidence intervals.

Table 4.11.4 Lifetime Use of Paan With or Without Tobacco, in Relation to Choice of Primary Language

Have you ever chewed paan with or without tobacco?				
	Females		Males	
Is English your primary language?	No %	Yes %	No %	Yes %
No	50.7 [46.7,54.6]	49.3 [45.4,53.3]	38.9 [35.2,42.8]	61.1 [57.2,64.8]
Yes	36.6 [32.8,40.5]	63.4 [59.5,67.2]	35.0 [31.7,38.4]	65.0 [61.6,68.3]

Design-based F(1, 3207) = 24.43; p < = 0.0001 (females)
Design-based F(1, 3207) = 2.30; p = 0.1297 (males)
*Note. Asked only of those respondents who reported having smoked 100 cigarettes in lifetime.
Cell entries are weighted percentages and 95% confidence intervals.

Table 4.11.5 Lifetime Use of Paan With or Without Tobacco, in Relation to Whether Born in Western Country

Did you ever use paan with or without tobacco?				
	Females		Males	
Was born in western country	No %	Yes %	No %	Yes %
Not western born	43.5 [40.5,46.5]	56.5 [53.5,59.5]	35.1 [32.5,37.8]	64.9 [62.2,67.5]
Western born	44.9 [37.2,52.8]	55.1 [47.2,62.8]	49.5 [41.1,58.0]	50.5 [42.0,58.9]

Design-based F(1, 3150) = 0.11; p = 0.7422 (females)
Design-based F(1, 3150) = 10.73; p = 0.0011 (males)
*Note. Asked only of those respondents who reported having smoked 100 cigarettes in lifetime.
Cell entries are weighted percentages and 95% confidence intervals.

Related to acculturation but somewhat independent of it is adherence to religious tenets. Below we explore the relationship between adherence to religious beliefs and practices and measures of tobacco use.

Examining Conventional Tobacco Use Prevalence as a Function of Religious Differences, and as a Function of Degree of Adherence to Specific Religions Common in India

Tables 4.12.1-7 show the relationship between major religious affiliation (Hinduism, Islam, Sikhism, atheism/agnosticism, other) and measures of conventional tobacco use. The measures of conventional tobacco use include: lifetime tobacco use (at least 100 cigarettes), current tobacco use (everyday or some days in last 30 days), lifetime cigar use, lifetime pipe use, lifetime use of chewing tobacco, and lifetime use of snuff and a composite of all conventional tobacco use. The first table generally describes the impact of adherence to specific religions on conventional tobacco use; the remaining tables provide corroborative detail. One finding is clear: California Asian Indians who say that they are atheists are significantly more likely to use conventional tobacco products than California Asian Indians who adhere to ANY of the major Indian religions. Among the men it is also true that adherence to Sikhism protects them from ever using conventional tobacco products. Among the Asian Indian women, adherence to Sikhism is somewhat more protective against their ever using conventional tobacco products compared to adherence to Islam but there is not a significant difference with adherence to Hinduism or with adherence to "Other" religions. As is discussed below, adherence to Sikhism is more consistently protective against use of Asian Indian tobacco products compared to India's other major religions.

Table 4.12.1 Any Lifetime Conventional Tobacco Use, in Relation to the Religion that the Respondent Reported Practicing

Have you ever used cigarettes, smoked a pipe, a cigar, used chewing tobacco, or snuff in your life?				
	Females		Males	
What religion do you practice?	No %	Yes %	No %	Yes %
Islam	81.2 [71.2,88.3]	18.8 [11.7,28.8]	37.1 [26.6,49.1]	62.9 [50.9,73.4]
Sikhism	92.1 [87.3,95.1]	7.9 [4.9,12.7]	80.2 [74.6,84.9]	19.8 [15.1,25.4]
Atheism	56.4 [41.3,70.3]	43.6 [29.7,58.7]	32.7 [25.4,41.0]	67.3 [59.0,74.6]
Other	82.0 [73.4,88.3]	18.0 [11.7,26.6]	43.5 [34.8,52.7]	56.5 [47.3,65.2]

Design-based F(3.95, 12509.21) = 10.35; p < 0.0001 (females)
Design-based F(3.98, 12617.95) = 27.24; p < 0.0001 (males)
Cell entries are weighted percentages and 95% confidence intervals

Table 4.12.2 Lifetime Tobacco Use Prevalence in Relation to the Religion Practiced by the Respondent

Have you smoked at least 100 cigarettes in your life?				
	Females		Males	
What religion do you practice?	No %	Yes %	No %	Yes %
Hinduism	97.0 [95.5,98.0]	3.0 [2.0,4.5]	73.8 [70.7,76.7]	26.2 [23.3,29.3]
Islam	93.8 [86.6,97.2]	6.2 [2.8,13.4]	57.0 [45.6,67.6]	43.0 [32.4,54.4]
Sikhism	96.4 [92.6,98.3]	3.6 [1.7,7.4]	93.6 [89.7,96.0]	6.4 [4.0,10.3]
Atheism	84.4 [70.3,92.5]	15.6 [7.5,29.7]	64.9 [56.3,72.6]	35.1 [27.4,43.7]
Other	93.3 [86.8,96.7]	6.7 [3.3,13.2]	65.5 [56.1,73.8]	34.5 [26.2,43.9]

Design-based F(3.94, 12481.96) = 4.71; p = 0.0009 (females)
Design-based F(3.98, 12613.95) = 18.66; p < 0.0001 (males)
*Note. Those born in the United States were NOT included in these analyses
Cell entries are weighted percentages and 95% confidence intervals.

Table 4.12.3 Current Tobacco Use Prevalence in Relation to the Religion Practiced by the Respondent

Do you currently smoke every day or some days?				
	Females		Males	
What religion do you practice?	No %	Yes %	No %	Yes %
Hinduism	98.3 [97.0,99.0]	1.7 [1.0,3.0]	91.2 [89.0,93.0]	8.8 [7.0,11.0]
Islam	96.4 [89.2,98.8]	3.6 [1.2,10.8]	81.8 [71.4,89.0]	18.2 [11.0,28.6]
Sikhism	99.4 [95.7,99.9]	0.6 [0.1,4.3]	98.0 [95.3,99.2]	2.0 [0.8,4.7]
Atheism	91.8 [77.3,97.4]	8.2 [2.6,22.7]	86.1 [78.5,91.4]	13.9 [8.6,21.5]
Other	98.1 [94.0,99.4]	1.9 [0.6,6.0]	85.4 [76.7,91.2]	14.6 [8.8,23.3]

Design-based F(3.75, 11877.05) = 2.83; p = 0.0258 (females)
Design-based F(3.96, 12544.07) = 7.34; p < 0.0001 (males)
*Note. Current smoker is defined as having smoked on some days or every day in past 30 days and having smoked at least 100 cigarettes in lifetime.
Cell entries are weighted percentages and 95% confidence intervals.

Table 4.12.4 Lifetime Cigar Use Prevalence in Relation to the Religion Practiced by the Respondent

Have you ever smoked a cigar, even just a few puffs? (Cigar=large cigar, cigarillo, or small cigar)				
	Females		Males	
What religion do you practice?	No %	Yes %	No %	Yes %
Hinduism	90.4 [88.2,92.3]	9.6 [7.7,11.8]	65.8 [62.4,69.1]	34.2 [30.9,37.6]
Islam	87.8 [78.5,93.4]	12.2 [6.6,21.5]	52.0 [40.6,63.2]	48.0 [36.8,59.4]
Sikhism	95.5 [91.5,97.7]	4.5 [2.3,8.5]	85.6 [80.4,89.7]	14.4 [10.3,19.6]
Atheism	69.1 [54.2,80.8]	30.9 [19.2,45.8]	40.8 [32.9,49.3]	59.2 [50.7,67.1]
Other	86.0 [77.6,91.6]	14.0 [8.4,22.4]	58.5 [49.2,67.2]	41.5 [32.8,50.8]

Design-based F(3.94, 12478.62) = 7.33; p = 0.0000 (females)
Design-based F(3.97, 12550.42) = 22.70; p < 0.0001 (males)
Cell entries are weighted percentages and 95% confidence intervals.

Table 4.12.5 Lifetime Pipe Use Prevalence in Relation to the Religion Practiced by the Respondent

Have you ever smoked a tobacco pipe?				
	Females		Males	
What religion do you practice?	No %	Yes %	No %	Yes %
Hinduism	98.6 [97.6,99.2]	1.4 [0.8,2.4]	90.6 [88.5,92.4]	9.4 [7.6,11.5]
Islam	96.6 [89.7,98.9]	3.4 [1.1,10.3]	81.2 [71.5,88.2]	18.8 [11.8,28.5]
Sikhism	98.6 [95.7,99.6]	1.4 [0.4,4.3]	97.8 [94.7,99.1]	2.2 [0.9,5.3]
Atheism	98.0 [87.0,99.7]	2.0 [0.3,13.0]	78.4 [70.9,84.3]	21.6 [15.7,29.1]
Other	98.5 [94.2,99.6]	1.5 [0.4,5.8]	87.2 [79.8,92.2]	12.8 [7.8,20.2]

Design-based F(3.91, 12354.93) = 0.57; p = 0.6793 (females)
Design-based F(3.93, 12439.23) = 11.80; p < 0.0001 (males)
Cell entries are weighted percentages and 95% confidence intervals.

Table 4.12.6 Lifetime Chewing Use Prevalence in Relation to the Religion Practiced by the Respondent

Have you ever used chewing tobacco such as Redmann, Levi Garrett, or Beechnut?				
	Females		Males	
What religion do you practice?	No %	Yes %	No %	Yes %
Hinduism	98.8 [97.9,99.3]	1.2 [0.7,2.1]	93.4 [91.4,95.0]	6.6 [5.0,8.6]
Islam	99.1 [93.9,99.9]	0.9 [0.1,6.1]	91.5 [83.0,95.9]	8.5 [4.1,17.0]
Sikhism	99.7 [98.2,100.0]	0.3 [0.0,1.8]	93.2 [88.7,96.0]	6.8 [4.0,11.3]
Atheism	98.0 [87.0,99.7]	2.0 [0.3,13.0]	89.9 [82.9,94.2]	10.1 [5.8,17.1]
Other	94.9 [89.4,97.6]	5.1 [2.4,10.6]	93.1 [87.5,96.3]	6.9 [3.7,12.5]

Design-based F(3.97, 12564.85) = 4.36; p = 0.0016 (females)
Design-based F(3.85, 12182.71) = 0.60; p = 0.6540 (males)
Cell entries are weighted percentages and 95% confidence intervals.

Table 4.12.7 Lifetime Snuff Use Prevalence in Relation to the Religion Practiced by the Respondent

Have you ever used snuff, such as Skoal, Skoal Bandits, or Copenhagen?				
	Females		Males	
What religion do you practice?	No %	Yes %	No %	Yes %
Hinduism	98.7 [97.7,99.3]	1.3 [0.7,2.3]	96.9 [95.5,97.9]	3.1 [2.1,4.5]
Islam	100.0	0.0	91.7 [84.3,95.7]	8.3 [4.3,15.7]
Sikhism	100.0	0.0	97.9 [95.5,99.0]	2.1 [1.0,4.5]
Atheism	96.5 [86.9,99.1]	3.5 [0.9,13.1]	89.9 [83.3,94.0]	10.1 [6.0,16.7]
Other	98.3 [93.5,99.6]	1.7 [0.4,6.5]	96.2 [91.7,98.3]	3.8 [1.7,8.3]

Design-based F(3.91, 12345.65) = 1.83; p = 0.1223 (females)
Design-based F(3.91, 12349.91) = 6.24; p < 0.0001(males)
Cell entries are weighted percentages and 95% confidence intervals.

Examining the Relationships between the Respondent's Belief About Whether His/Her Religion Discourages Tobacco Use and Various Measures of Conventional Tobacco Use

Tables 4.13.1-7 show the relationship between the respondent's belief about whether his/her religion discourages tobacco use and measures of conventional tobacco use. The measures of conventional tobacco use include: lifetime tobacco use (at least 100 cigarettes), current tobacco use (everyday or some days in last 30 days), lifetime cigar use, lifetime pipe use, lifetime use of chewing tobacco, and lifetime use of snuff and a composite of all conventional tobacco use. The results described in the first table provide the general finding; all remaining tables provide corroborative detail. The overall results show that those Asian Indian respondents, men and women, who say that their religion "strongly discourages" tobacco use are significantly less likely to have ever used conventional tobacco.

Table 4.13.1 Any Lifetime Conventional Tobacco Use in Relation to How Much One's Religion Discourages Tobacco Use

Have you ever used cigarettes, smoked a pipe, a cigar, used chewing tobacco or snuff in your life?				
	Females		Males	
My religion discourages tobacco use	No %	Yes %	No %	Yes %
Strongly disagree	86.9 [80.7,91.3]	13.1 [8.7,19.3]	56.7 [49.8,63.4]	43.3 [36.6,50.2]
Somewhat disagree	85.5 [77.7,90.9]	14.5 [9.1,22.3]	49.5 [41.0,58.0]	50.5 [42.0,59.0]
Neither agree nor disagree	80.8 [75.0,85.4]	19.2 [14.6,25.0]	51.1 [44.6,57.7]	48.9 [42.3,55.4]
Somewhat agree	84.9 [78.5,89.7]	15.1 [10.3,21.5]	45.1 [37.5,53.0]	54.9 [47.0,62.5]
Strongly agree	91.3 [88.4,93.5]	8.7 [6.5,11.6]	66.8 [62.5,70.7]	33.2 [29.3,37.5]

Design-based F(3.99, 11517.43) = 4.38; p = 0.0016 (females)
Design-based F(4.00, 11535.96) = 8.61; p < = 0.0001 (males)
*Note. Those born in the United States were NOT included in these analyses.
Cell entries are weighted percentages and 95% confidence intervals.

Table 4.13.2 Lifetime Tobacco Use Prevalence in Relation to How Much One's Religion Discourages Tobacco Use

Have you smoked at least 100 cigarettes in your life?				
	Females		Males	
My religion discourages tobacco use	No %	Yes %	No %	Yes %
Strongly disagree	96.3 [92.2,98.3]	3.7 [1.7,7.8]	69.7 [63.1,75.5]	30.3 [24.5,36.9]
Somewhat disagree	98.1 [94.1,99.4]	1.9 [0.6,5.9]	67.9 [59.5,75.3]	32.1 [24.7,40.5]
Neither agree nor disagree	94.5 [90.5,96.9]	5.5 [3.1,9.5]	79.3 [74.0,83.8]	20.7 [16.2,26.0]
Somewhat agree	96.8 [92.0,98.7]	3.2 [1.3,8.0]	67.7 [59.8,74.6]	32.3 [25.4,40.2]
Strongly agree	96.4 [94.3,97.7]	3.6 [2.3,5.7]	83.8 [80.5,86.7]	16.2 [13.3,19.5]

Design-based F(3.89, 11227.70) = 0.76; p = 0.5466 (females)
Design-based F(3.98, 11480.33) = 8.80; p < = 0.0001 (males)
*Note. Those born in the United States were NOT included in these analyses.
Cell entries are weighted percentages and 95% confidence intervals.

Table 4.13.3 Current Tobacco Use Prevalence in Relation to How Much One's Religion Discourages Tobacco Use

Do you currently smoke every day or some days?				
	Females		Males	
My religion discourages tobacco use	No %	Yes %	No %	Yes %
Strongly disagree	98.9 [95.8,99.7]	1.1 [0.3,4.2]	88.2 [83.0,92.0]	11.8 [8.0,17.0]
Somewhat disagree	99.2 [94.7,99.9]	0.8 [0.1,5.3]	84.0 [76.5,89.5]	16.0 [10.5,23.5]
Neither agree nor disagree	96.9 [93.6,98.6]	3.1 [1.4,6.4]	95.1 [91.3,97.3]	4.9 [2.7,8.7]
Somewhat agree	97.7 [92.7,99.3]	2.3 [0.7,7.3]	89.2 [82.5,93.5]	10.8 [6.5,17.5]
Strongly agree	98.7 [97.1,99.4]	1.3 [0.6,2.9]	94.8 [92.7,96.3]	5.2 [3.7,7.3]

Design-based F(3.87, 11159.67) = 1.02; p = 0.3946 (females)
Design-based F(3.96, 11410.97) = 5.99; p = 0.0001 (males)
*Note. Current smoker is defined as having smoked on some days or every day in past 30 days and having smoked at least 100 cigarettes in lifetime.
Cell entries are weighted percentages and 95% confidence intervals.

Table 4.13.4 Lifetime Cigar Use Prevalence in Relation to How Much One's Religion Discourages Tobacco Use

Have you ever smoked a cigar, even just a few puffs? (Cigar=large cigar, cigarillo, or small cigar)				
	Females		Males	
My religion discourages tobacco use	No %	Yes %	No %	Yes %
Strongly disagree	89.2 [83.3,93.2]	10.8 [6.8,16.7]	70.1 [63.4,76.0]	29.9 [24.0,36.6]
Somewhat disagree	90.0 [83.1,94.3]	10.0 [5.7,16.9]	61.5 [53.0,69.4]	38.5 [30.6,47.0]
Neither agree nor disagree	85.2 [79.9,89.3]	14.8 [10.7,20.1]	57.9 [51.3,64.2]	42.1 [35.8,48.7]
Somewhat agree	87.5 [81.1,91.9]	12.5 [8.1,18.9]	63.0 [54.8,70.4]	37.0 [29.6,45.2]
Strongly agree	94.4 [92.0,96.1]	5.6 [3.9,8.0]	76.2 [72.3,79.7]	23.8 [20.3,27.7]
Design-based F(3.98, 11484.08) = 4.74; p = 0.0008 (females) Design-based F(3.99, 11511.23) = 7.56; p < = 0.0001 (males) Cell entries are weighted percentages and 95% confidence intervals.				

Table 4.13.5 Lifetime Pipe Use Prevalence in Relation to How Much One's Religion Discourages Tobacco Use

Have you ever smoked a tobacco pipe?				
	Females		Males	
My religion discourages tobacco use	No %	Yes %	No %	Yes %
Strongly disagree	98.9 [95.8,99.7]	1.1 [0.3,4.2]	89.5 [84.8,92.8]	10.5 [7.2,15.2]
Somewhat disagree	97.3 [91.7,99.1]	2.7 [0.9,8.3]	90.4 [84.9,94.1]	9.6 [5.9,15.1]
Neither agree nor disagree	98.6 [96.0,99.5]	1.4 [0.5,4.0]	88.3 [83.5,91.8]	11.7 [8.2,16.5]
Somewhat agree	98.0 [94.5,99.3]	2.0 [0.7,5.5]	91.8 [86.5,95.2]	8.2 [4.8,13.5]
Strongly agree	98.6 [97.3,99.3]	1.4 [0.7,2.7]	93.3 [91.0,95.1]	6.7 [4.9,9.0]
Design-based F(3.98, 11458.50) = 0.45; p = 0.7703 (females) Design-based F(3.98, 11464.17) = 1.73; p = 0.1398 (males) Cell entries are weighted percentages and 95% confidence intervals.				

Table 4.13.6 Lifetime Chewing Use Prevalence in Relation to How Much One's Religion Discourages Tobacco Use

Have you ever used chewing tobacco such as Redmann, Levi Garrett, or Beechnut?				
	Females		Males	
My religion discourages tobacco use	No %	Yes %	No %	Yes %
Strongly disagree	98.1 [94.8,99.3]	1.9 [0.7,5.2]	95.7 [91.6,97.8]	4.3 [2.2,8.4]
Somewhat disagree	98.9 [92.6,99.8]	1.1 [0.2,7.4]	90.3 [84.6,94.0]	9.7 [6.0,15.4]
Neither agree nor disagree	98.4 [96.1,99.4]	1.6 [0.6,3.9]	93.5 [89.5,96.1]	6.5 [3.9,10.5]
Somewhat agree	99.1 [97.1,99.7]	0.9 [0.3,2.9]	92.2 [86.4,95.7]	7.8 [4.3,13.6]
Strongly agree	99.1 [98.0,99.6]	0.9 [0.4,2.0]	93.1 [90.2,95.2]	6.9 [4.8,9.8]
Design-based F(3.72, 10712.60) = 0.44; p = 0.7640(females) Design-based F(3.96, 11404.31) = 0.96; p= 0.4280 (males) Cell entries are weighted percentages and 95% confidence intervals.				

Table 4.13.7 Lifetime Snuff Use Prevalence in Relation to How Much One's Religion Discourages Tobacco Use

Have you ever used snuff, such as Skoal, Skoal Bandits, or Copenhagen?				
	Females		Males	
My religion discourages tobacco use	No %	Yes %	No %	Yes %
Strongly disagree	98.9 [95.8,99.7]	1.1 [0.3,4.2]	99.2 [96.6,99.8]	0.8 [0.2,3.4]
Somewhat disagree	98.4 [93.3,99.6]	1.6 [0.4,6.7]	94.8 [90.1,97.4]	5.2 [2.6,9.9]
Neither agree nor disagree	99.2 [96.9,99.8]	0.8 [0.2,3.1]	97.3 [94.6,98.7]	2.7 [1.3,5.4]
Somewhat agree	99.7 [97.9,100.0]	0.3 [0.0,2.1]	94.2 [89.2,97.0]	5.8 [3.0,10.8]
Strongly agree	98.9 [97.5,99.5]	1.1 [0.5,2.5]	97.0 [95.2,98.2]	3.0 [1.8,4.8]
Design-based F(3.78, 10873.12) = 0.42; p = 0.7811 (females) Design-based F(3.97, 11436.97) = 2.53; p = 0.0389 (males) Cell entries are weighted percentages and 95% confidence intervals.				

Examining Relationships Between Respondents' Religiosity and Various Measures of Conventional Tobacco Use

Tables 4.14.1-7 shows the relationship between the respondent's general religiosity and measures of conventional tobacco use. The measures of conventional tobacco use included: lifetime tobacco use (at least 100 cigarettes), current tobacco use (everyday or some days in last 30 days), lifetime cigar use, lifetime pipe use, lifetime use of chewing tobacco, and lifetime use of snuff and a composite of all conventional tobacco use. As discussed in Chapter 2, religiosity was derived from responses to three questions: "My spiritual beliefs are the foundation of my approach to life," "I believe I am a religious person," and "I observe the traditional holidays that are important in my culture and religion." Consistent agreement with these items yielded high religiosity; consistent disagreement with these items yielded low religiosity.

The first table tells the overall story; the remaining tables provide corroborative detail. Consistent with other literature relating religiosity to reduced tobacco use (e.g., van den Bree et al., 2004), for both Asian Indian men and women, the greater their religiosity, the less likely it is that they will have ever used conventional tobacco.

The religiosity scores are a continuous rather than the usual categorical measure used in previous analyses. For ease of interpretation, the following analyses of religiosity employed quintiles. The choice to categorize religiosity scores as quintiles rather than as quartiles or tertiles was to permit a midpoint, which quartiles would not permit, and to permit the assessment of patterns that varied over more than just the high/medium/low intervals implied by use of tertiles. Quintiles were preferred also because they are conventionally used in the preventive medicine literature on epidemiological risk factor assessment (e.g., Fried et al., 1998; Gardner et al., 1996).

Table 4.14.1 Any Lifetime Conventional Tobacco Use in Relation to Quintiles of Religiosity Factor Scores

Have you ever used cigarettes, smoked a pipe, a cigar, used chewing tobacco or snuff in your life?				
	Females		Males	
Quintile religiosity score	No %	Yes %	No %	Yes %
Lowest quintile	69.2 [61.8,75.7]	30.8 [24.3,38.2]	49.8 [43.9,55.7]	50.2 [44.3,56.1]
Second lowest quintile	86.2 [80.5,90.4]	13.8 [9.6,19.5]	51.2 [44.8,57.6]	48.8 [42.4,55.2]
Middle quintile	87.2 [82.4,90.8]	12.8 [9.2,17.6]	56.5 [50.4,62.4]	43.5 [37.6,49.6]
Second highest quintile	89.2 [85.0,92.3]	10.8 [7.7,15.0]	61.8 [55.7,67.5]	38.2 [32.5,44.3]
Highest quintile	96.2 [93.2,97.9]	3.8 [2.1,6.8]	74.1 [67.6,79.6]	25.9 [20.4,32.4]

Design-based F(3.99, 11508.82) = 16.31; p < 0.0001 (females)
Design-based F(3.98, 11484.85) = 8.39; p < 0.0001 (males)
*Note. Those born in the United States were NOT included in these analyses.
Cell entries are weighted percentages and 95% confidence intervals.

Table 4.14.2 Lifetime Tobacco Use Prevalence in Relation to Quintiles of Religiosity Factor Scores

Have you smoked at least 100 cigarettes in your life?				
	Females		Males	
Quintile religiosity score	No %	Yes %	No %	Yes %
Lowest quintile	89.8 [84.0,93.6]	10.2 [6.4,16.0]	72.5 [67.1,77.3]	27.5 [22.7,32.9]
Second lowest quintile	95.9 [91.6,98.0]	4.1 [2.0,8.4]	73.4 [67.5,78.6]	26.6 [21.4,32.5]
Middle quintile	96.8 [94.0,98.4]	3.2 [1.6,6.0]	76.9 [71.4,81.6]	23.1 [18.4,28.6]
Second highest quintile	96.3 [93.4,98.0]	3.7 [2.0,6.6]	80.4 [75.2,84.7]	19.6 [15.3,24.8]
Highest quintile	99.3 [97.1,99.8]	0.7 [0.2,2.9]	82.0 [76.0,86.8]	18.0 [13.2,24.0]

Design-based F(3.99, 11483.32) = 6.00; p = 0.0001 (females)
Design-based F(4.00, 11509.70) = 2.38; p = 0.0499 (males)
*Note. Those born in the United States were NOT included in these analyses.
Cell entries are weighted percentages and 95% confidence intervals.

Table 4.14.3 Current Tobacco Use Prevalence in Relation to Quintiles of Religiosity Factor Scores

Do you currently smoke every day or some days?				
	Females		Males	
Quintile religiosity score	No %	Yes %	No %	Yes %
Lowest quintile	94.8 [89.9,97.4]	5.2 [2.6,10.1]	87.8 [83.2,91.3]	12.2 [8.7,16.8]
Second lowest quintile	96.5 [92.1,98.5]	3.5 [1.5,7.9]	93.2 [89.6,95.7]	6.8 [4.3,10.4]
Middle quintile	99.2 [97.4,99.7]	0.8 [0.3,2.6]	91.5 [87.1,94.4]	8.5 [5.6,12.9]
Second highest quintile	99.2 [97.0,99.8]	0.8 [0.2,3.0]	92.9 [89.0,95.5]	7.1 [4.5,11.0]
Highest quintile	99.3 [97.1,99.8]	0.7 [0.2,2.9]	95.8 [92.1,97.8]	4.2 [2.2,7.9]

Design-based F(3.92, 11284.01) = 4.53; p = 0.0013 (females)
Design-based F(3.93, 11323.79) = 2.92; p = 0.0204 (males)
*Note. Current smoker defined as having smoked some days or everyday in last 30 days and having smoked at least 100 cigarettes in lifetime.
Cell entries are weighted percentages and 95% confidence intervals.

Table 4.14.4 Lifetime Cigar Use Prevalence in Relation to Quintiles of Religiosity Factor Scores

Have you ever smoked a cigar, even just a few puffs? (Cigar=large cigar, cigarillo, or small cigar)				
	Females		Males	
Quintile religiosity score	No %	Yes %	No %	Yes %
Lowest quintile	76.2 [69.2,82.0]	23.8 [18.0,30.8]	58.0 [52.0,63.7]	42.0 [36.3,48.0]
Second lowest quintile	89.3 [84.0,93.0]	10.7 [7.0,16.0]	63.3 [57.0,69.2]	36.7 [30.8,43.0]
Middle quintile	88.9 [84.3,92.3]	11.1 [7.7,15.7]	67.6 [61.6,73.0]	32.4 [27.0,38.4]
Second highest quintile	94.3 [91.1,96.4]	5.7 [3.6,8.9]	73.1 [67.3,78.2]	26.9 [21.8,32.7]
Highest quintile	97.5 [94.5,98.8]	2.5 [1.2,5.5]	85.5 [80.2,89.5]	14.5 [10.5,19.8]

Design-based F(3.99, 11483.17) = 14.25; p < 0.0001 (females)
Design-based F(3.96, 11412.36) = 11.49; p < 0.0001 (males)
Cell entries are weighted percentages and 95% confidence intervals.

Table 4.14.5 Lifetime Pipe Use Prevalence in Relation to Quintiles of Religiosity Factor Scores

Have you ever smoked a tobacco pipe?				
	Females		Males	
Quintile religiosity score	No %	Yes %	No %	Yes %
Lowest quintile	95.5 [91.5,97.7]	4.5 [2.3,8.5]	87.7 [83.3,91.0]	12.3 [9.0,16.7]
Second lowest quintile	98.4 [95.4,99.4]	1.6 [0.6,4.6]	91.1 [87.1,93.9]	8.9 [6.1,12.9]
Middle quintile	98.6 [96.2,99.5]	1.4 [0.5,3.8]	92.0 [88.2,94.6]	8.0 [5.4,11.8]
Second highest quintile	98.9 [96.5,99.6]	1.1 [0.4,3.5]	91.0 [87.2,93.7]	9.0 [6.3,12.8]
Highest quintile	99.4 [97.6,99.8]	0.6 [0.2,2.4]	95.0 [91.1,97.2]	5.0 [2.8,8.9]

Design-based F(3.94, 11336.24) = 2.78; p = 0.0262 (females)
Design-based F(3.97, 11433.10) = 2.22; p = 0.0642 (males)
Cell entries are weighted percentages and 95% confidence intervals.

Table 4.14.6 Lifetime Chewing Use Prevalence in Relation to Quintiles of Religiosity Factor Scores

Have you ever used chewing tobacco such as Redmann, Levi Garrett, or Beechnut?				
	Females		Males	
Quintile religiosity score	No %	Yes %	No %	Yes %
Lowest quintile	96.6 [92.8,98.5]	3.4 [1.5,7.2]	92.9 [89.2,95.3]	7.1 [4.7,10.8]
Second lowest quintile	98.1 [95.5,99.2]	1.9 [0.8,4.5]	92.6 [88.0,95.5]	7.4 [4.5,12.0]
Middle quintile	99.2 [97.6,99.8]	0.8 [0.2,2.4]	93.1 [88.8,95.8]	6.9 [4.2,11.2]
Second highest quintile	98.9 [97.2,99.5]	1.1 [0.5,2.8]	92.5 [88.1,95.3]	7.5 [4.7,11.9]
Highest quintile	99.5 [98.0,99.9]	0.5 [0.1,2.0]	95.8 [91.8,97.9]	4.2 [2.1,8.2]

Design-based F(3.99, 11496.44) = 2.52; p = 0.0391 (females)
Design-based F(3.97, 11442.92) = 0.52; p = 0.7194 (males)
Cell entries are weighted percentages and 95% confidence intervals.

Table 4.14.7 Lifetime Snuff Use Prevalence in Relation to Quintiles of Religiosity Factor Scores

Have you ever used snuff, such as Skoal, Skoal Bandits, or Copenhagen?				
	Females		Males	
Quintile religiosity score	No %	Yes %	No %	Yes %
Lowest quintile	98.0 [94.8,99.3]	2.0 [0.7,5.2]	95.0 [92.0,96.9]	5.0 [3.1,8.0]
Second lowest quintile	98.7 [95.8,99.6]	1.3 [0.4,4.2]	98.2 [96.2,99.1]	1.8 [0.9,3.8]
Middle quintile	100.0	0.0	97.3 [94.1,98.8]	2.7 [1.2,5.9]
Second highest quintile	98.5 [95.9,99.4]	1.5 [0.6,4.1]	95.8 [92.6,97.7]	4.2 [2.3,7.4]
Highest quintile	99.5 [98.0,99.9]	0.5 [0.1,2.0]	98.9 [96.4,99.6]	1.1 [0.4,3.6]

Design-based F(3.83, 11023.46) = 1.72; p = 0.1446 (females)
Design-based F(3.82, 10982.04) = 2.36; p = 0.0541 (males)
Cell entries are weighted percentages and 95% confidence intervals.

Examining Asian Indian-specific Tobacco Use Prevalence as a Function of Religious Differences, and as a Function of Degree of Adherence to a Specific Religion Common in India

Tables 4.15.1-4 show the relationship between major religious affiliation (Hinduism, Islam, Sikhism, atheism, other) and measures of Asian Indian-specific tobacco use. The measures of Asian Indian-specific tobacco use include: lifetime bidi tobacco use, lifetime paan with tobacco use (e.g., kathi, zarda use), lifetime gutka use and a composite of lifetime Asian Indian tobacco use. The first table tells the general story; the additional tables provide corroborative detail. The general result is that adherents to Sikhism are significantly less likely than adherents to the other major Asian Indian religions to have ever used Asian Indian-specific tobacco products. Sikhism is to the other Asian Indian religions what Mormonism is to other major religions practiced in the U.S.: both strongly and explicitly forbid use of tobacco. To be a Sikh is to commit to never using tobacco. By contrast, there appear to be no discernible differences in Asian Indian-specific tobacco use between atheists, Muslims, or Hindus.

Table 4.15.1 Any Asian Indian Tobacco Use, in Relation to the Religion that the Respondent Reported Practicing

Have you ever used an Asian Indian tobacco product?				
	Females		Males	
What religion do you practice?	No %	Yes %	No %	Yes %
Hinduism	35.0 [31.7,38.3]	65.0 [61.7,68.3]	25.6 [22.7,28.8]	74.4 [71.2,77.3]
Islam	35.0 [25.6,45.7]	65.0 [54.3,74.4]	20.2 [12.9,30.2]	79.8 [69.8,87.1]
Sikhism	75.5 [69.1,81.0]	24.5 [19.0,30.9]	65.5 [59.4,71.0]	34.5 [29.0,40.6]
Atheism	38.2 [24.5,54.0]	61.8 [46.0,75.5]	36.6 [28.9,45.0]	63.4 [55.0,71.1]
Other	38.4 [29.1,48.7]	61.6 [51.3,70.9]	40.4 [31.9,49.6]	59.6 [50.4,68.1]

Design-based F(3.98, 12615.95) = 30.38; $p < 0.0001$ (females)
Design-based F(3.97, 12584.22) = 38.50; $p < 0.0001$ (males)
Cell entries are weighted percentages and 95% confidence intervals.

Table 4.15.2 Lifetime Smoking of at Least 100 Bidis, in Relation to the Religion that the Respondent Reported Practicing

Have you ever smoked 100 bidis in lifetime?				
	Females		Males	
What religion do you practice?	No %	Yes %	No %	Yes %
Hinduism	99.8 [99.2,99.9]	0.2 [0.1,0.8]	96.1 [94.7,97.2]	3.9 [2.8,5.3]
Islam	100.0	0.0	88.2 [80.6,93.1]	11.8 [6.9,19.4]
Sikhism	99.4 [95.6,99.9]	0.6 [0.1,4.4]	98.2 [95.4,99.3]	1.8 [0.7,4.6]
Atheism	100.0	0.0	94.7 [89.6,97.4]	5.3 [2.6,10.4]
Other	100.0	0.0	96.1 [91.4,98.3]	3.9 [1.7,8.6]

Design-based F(3.76, 11899.48) = 0.46; p = 0.7511 (females)
Design-based F(3.84, 12141.76) = 4.18; p = 0.0026 (males)
Cell entries are weighted percentages and 95% confidence intervals.

Table 4.15.3 Lifetime Use of Paan with Tobacco, in Relation to the Religion Practiced by the Respondent

Have you ever chewed paan with tobacco?				
	Females		Males	
What religion do you practice?	No %	Yes %	No %	Yes %
Hinduism	95.5 [90.3,97.9]	4.5 [2.1,9.7]	90.1 [84.0,94.1]	9.9 [5.9,16.0]
Islam	100.0	0.0	83.7 [57.8,95.1]	16.3 [4.9,42.2]
Sikhism	87.3 [58.2,97.1]	12.7 [2.9,41.8]	100.0	0.0
Atheism	100.0	0.0	90.5 [68.2,97.7]	9.5 [2.3,31.8]
Other	96.9 [80.2,99.6]	3.1 [0.4,19.8]	77.0 [46.3,92.9]	23.0 [7.1,53.7]

Design-based F(3.74, 1503.09) = 0.72; p = 0.5713 (females)
Design-based F(3.69, 1484.85) = 1.03; p = 0.3889 (males)
Cell entries are weighted percentages and 95% confidence intervals.

Table 4.15.4 Lifetime Gutka Use, in Relation to the Religion Practiced by the Respondent

Have you ever chewed gutka?				
	Females		Males	
What religion do you practice?	No %	Yes %	No %	Yes %
Hinduism	95.9 [94.4,97.0]	4.1 [3.0,5.6]	88.5 [86.0,90.6]	11.5 [9.4,14.0]
Islam	94.7 [87.5,97.9]	5.3 [2.1,12.5]	79.9 [68.7,87.8]	20.1 [12.2,31.3]
Sikhism	99.0 [96.7,99.7]	1.0 [0.3,3.3]	94.1 [89.4,96.8]	5.9 [3.2,10.6]
Atheism	98.9 [92.3,99.8]	1.1 [0.2,7.7]	94.4 [90.0,96.9]	5.6 [3.1,10.0]
Other	94.2 [88.1,97.2]	5.8 [2.8,11.9]	87.1 [79.1,92.3]	12.9 [7.7,20.9]

Design-based F(3.79, 11939.85) = 2.53; p= 0.0415 (females)
Design-based F(3.75, 11828.72) = 4.08; p = 0.0033 (males)
*Note. Asked only of those respondents who reported having smoked 100 cigarettes in lifetime.
Cell entries are weighted percentages and 95% confidence intervals.

Examining the Relationships between Respondents' Beliefs About Whether Their Religion Discourages Tobacco Use

Tables 4.16.1-4 show the relationship between the respondents' belief about whether his/her religion discourages tobacco use and measures of Asian Indian-specific tobacco use. The measures of Asian Indian-specific tobacco use include: lifetime bidi tobacco use, lifetime paan with tobacco use (e.g., kathi, zarda use), lifetime gutka use and a composite of lifetime Asian Indian tobacco use. The first table tells the general story; the remaining tables provide corroborative detail. As predicted, when a California Asian Indian asserts that her/his religion "strongly" discourages tobacco use, they are significantly less likely to use Asian Indian-specific tobacco products.

Table 4.16.1 Any lifetime Asian Indian Tobacco Use in Relation to How Much One's Religion Discourages Tobacco Use

Have you ever smoked bidis, chewed paan with tobacco, or chewed gutka?				
	Females		Males	
My religion discourages tobacco use	No %	Yes %	No %	Yes %
Strongly disagree	37.5 [30.3,45.3]	62.5 [54.7,69.7]	36.7 [30.3,43.6]	63.3 [56.4,69.7]
Somewhat disagree	34.5 [26.2,43.9]	65.5 [56.1,73.8]	24.7 [17.8,33.2]	75.3 [66.8,82.2]
Neither agree nor disagree	30.5 [24.7,37.1]	69.5 [62.9,75.3]	26.5 [21.2,32.7]	73.5 [67.3,78.8]
Somewhat agree	41.8 [34.3,49.7]	58.2 [50.3,65.7]	26.7 [20.6,33.7]	73.3 [66.3,79.4]
Strongly agree	52.1 [47.7,56.4]	47.9 [43.6,52.3]	45.5 [41.3,49.8]	54.5 [50.2,58.7]

Design-based F(4.00, 11534.56) = 9.20; p < 0.0001(females)
Design-based F(3.98, 11490.58) = 10.47; p < 0.0001 (males)
*Note. Those born in the United States were NOT included in these analyses.
Cell entries are weighted percentages and 95% confidence intervals.

Table 4.16.2 Lifetime Bidi Use, in Relation to How Much One's Religion Discourages Tobacco Use

Have you smoked at least 100 bidis in your life?				
	Females		Males	
My religion discourages tobacco use	No %	Yes %	No %	Yes %
Strongly disagree	100.0	0.0	96.2 [93.5,97.8]	3.8 [2.2,6.5]
Somewhat disagree	99.2 [94.7,99.9]	0.8 [0.1,5.3]	94.9 [90.3,97.4]	5.1 [2.6,9.7]
Neither agree nor disagree	100.0	0.0	96.6 [93.6,98.2]	3.4 [1.8,6.4]
Somewhat agree	100.0	0.0	96.7 [93.5,98.4]	3.3 [1.6,6.5]
Strongly agree	99.6 [98.2,99.9]	0.4 [0.1,1.8]	96.1 [94.3,97.4]	3.9 [2.6,5.7]

Design-based F(3.88, 11180.41) = 0.71; p = 0.5774 (females)
Design-based F(3.94, 11366.85) = 0.27; p = 0.8967 (males)
*Note. Those born in the United States were NOT included in these analyses.
Cell entries are weighted percentages and 95% confidence intervals.

Table 4.16.3 Lifetime Use of Paan with Tobacco, in Relation to How Much One's Religion Discourages Tobacco Use

Have you used paan with tobacco?				
	Females		Males	
My religion discourages tobacco use	No %	Yes %	No %	Yes %
Strongly disagree	89.8 [72.0,96.8]	10.2 [3.2,28.0]	86.0 [69.9,94.2]	14.0 [5.8,30.1]
Somewhat disagree	100.0	0.0	94.1 [82.4,98.2]	5.9 [1.8,17.6]
Neither agree nor disagree	93.5 [76.6,98.4]	6.5 [1.6,23.4]	93.1 [82.3,97.5]	6.9 [2.5,17.7]
Somewhat agree	95.3 [82.4,98.9]	4.7 [1.1,17.6]	96.6 [78.7,99.5]	3.4 [0.5,21.3]
Strongly agree	97.0 [90.7,99.1]	3.0 [0.9,9.3]	82.3 [68.6,90.8]	17.7 [9.2,31.4]

Design-based F(3.75, 1418.70) = 0.85; p = 0.4870 (females)
Design-based F(3.91, 1478.00) = 1.74; p = 0.1406 (males)
*Note. Asked only of those respondents who reported having smoked 100 cigarettes in lifetime.
Cell entries are weighted percentages and 95% confidence intervals.

Table 4.16.4 Lifetime Gutka Use, in Relation to How Much One's Religion Discourages Tobacco Use

	Have you ever chewed gutka?			
	Females		Males	
My religion discourages tobacco use	No %	Yes %	No %	Yes %
Strongly disagree	93.9 [89.0,96.7]	6.1 [3.3,11.0]	90.3 [85.0,93.8]	9.7 [6.2,15.0]
Somewhat disagree	96.8 [92.3,98.7]	3.2 [1.3,7.7]	83.5 [75.7,89.2]	16.5 [10.8,24.3]
Neither agree nor disagree	96.1 [92.9,97.9]	3.9 [2.1,7.1]	89.7 [85.0,93.0]	10.3 [7.0,15.0]
Somewhat agree	93.9 [89.1,96.6]	6.1 [3.4,10.9]	87.8 [81.3,92.3]	12.2 [7.7,18.7]
Strongly agree	97.4 [95.8,98.4]	2.6 [1.6,4.2]	90.0 [86.8,92.5]	10.0 [7.5,13.2]

Design-based F(3.96, 11394.48) = 2.00; p = 0.0918 (females)
Design-based F(3.99, 11472.66) = 1.22; p = 0.3000 (males)
Cell entries are weighted percentages and 95% confidence intervals.

Examining the Relationships Between the Respondents' General Religiosity and Various Measures of Conventional Tobacco Use

Tables 4.17.1 shows the relationship between the respondents' general religiosity and measures of conventional tobacco use. The measures of Asian Indian-specific tobacco use include: lifetime bidi tobacco use, lifetime paan with tobacco use (e.g., kathi, zarda use), lifetime gutka use and a composite of lifetime Asian Indian tobacco use. The first table tells the general story; the follow-up tables provide more detail. As predicted, when religiosity increases – no matter what the specific religion in question – Asian Indian-specific tobacco declines.

Table 4.17.1 Any Lifetime Asian Indian Tobacco Use in Relation to Quintile of Religiosity Factor Scores

	Have you ever smoked bidis, chewed paan with tobacco, or chewed gutka?			
	Females		Males	
Quintile religiosity score	No %	Yes %	No %	Yes %
Lowest quintile	29.2 [22.7,36.7]	70.8 [63.3,77.3]	27.8 [22.9,33.3]	72.2 [66.7,77.1]
Second lowest quintile	36.9 [30.2,44.1]	63.1 [55.9,69.8]	26.7 [21.3,32.9]	73.3 [67.1,78.7]
Middle quintile	37.8 [32.1,43.8]	62.2 [56.2,67.9]	33.1 [27.6,39.1]	66.9 [60.9,72.4]
Second highest quintile	47.5 [41.9,53.1]	52.5 [46.9,58.1]	38.7 [33.0,44.8]	61.3 [55.2,67.0]
Highest quintile	53.4 [47.1,59.6]	46.6 [40.4,52.9]	52.0 [44.8,59.0]	48.0 [41.0,55.2]

Design-based F(3.99, 11506.01) = 7.84; p < 0.0001 (females)
Design-based F(3.99, 11515.05) = 9.60; p < 0.0001 (males)
*Note. Those born in the United States were NOT included in these analyses.
Cell entries are weighted percentages and 95% confidence intervals.

Table 4.17.2 Lifetime Bidi Use, in Relation to Quintile of Religiosity Factor Scores

Have you smoked at least 100 bidis in your life?				
	Females		Males	
Quintile religiosity score	No %	Yes %	No %	Yes %
Lowest quintile	99.5 [96.3,99.9]	0.5 [0.1,3.7]	95.4 [92.6,97.1]	4.6 [2.9,7.4]
Second lowest quintile	99.6 [97.0,99.9]	0.4 [0.1,3.0]	96.2 [93.2,97.8]	3.8 [2.2,6.8]
Middle quintile	99.4 [96.0,99.9]	0.6 [0.1,4.0]	96.0 [92.8,97.8]	4.0 [2.2,7.2]
Second highest quintile	100.0	0.0	96.0 [93.5,97.6]	4.0 [2.4,6.5]
Highest quintile	100.0	0.0	97.1 [94.2,98.6]	2.9 [1.4,5.8]

Design-based F(3.70, 10641.68) = 0.73; p = 0.5622 (females)
Design-based F(3.95, 11369.37) = 0.29; p = 0.8854 (males)
*Note. Those born in the United States were NOT included in these analyses.
Cell entries are weighted percentages and 95% confidence intervals.

Table 4.17.3 Lifetime Use of Paan with Tobacco, in Relation to Quintile of Religiosity Factor Scores

Have you used paan with tobacco?				
	Females		Males	
Quintile religiosity score	No %	Yes %	No %	Yes %
Lowest quintile	85.9 [61.2,96.0]	14.1 [4.0,38.8]	93.2 [82.6,97.5]	6.8 [2.5,17.4]
Second lowest quintile	91.8 [76.4,97.5]	8.2 [2.5,23.6]	88.4 [72.6,95.6]	11.6 [4.4,27.4]
Middle quintile	97.1 [88.7,99.3]	2.9 [0.7,11.3]	89.7 [76.7,95.8]	10.3 [4.2,23.3]
Second highest quintile	98.2 [88.4,99.8]	1.8 [0.2,11.6]	85.2 [69.2,93.7]	14.8 [6.3,30.8]
Highest quintile	97.2 [82.4,99.6]	2.8 [0.4,17.6]	92.2 [72.2,98.2]	7.8 [1.8,27.8]

Design-based F(3.95, 1493.29) = 1.73; p = 0.1423 (females)
Design-based F(3.84, 1451.15) = 0.40; p = 0.8012 (males)
*Note. Asked only of those respondents who reported having smoked 100 cigarettes in lifetime.
Cell entries are weighted percentages and 95% confidence intervals.

Table 4.17.4 Lifetime Gutka Use, in Relation to Quintile of Religiosity Factor Scores

	Have you ever chewed gutka?			
	Females		Males	
Quintile religiosity score	No %	Yes %	No %	Yes %
Lowest quintile	95.3 [91.2,97.5]	4.7 [2.5,8.8]	90.2 [85.8,93.3]	9.8 [6.7,14.2]
Second lowest quintile	93.6 [89.4,96.2]	6.4 [3.8,10.6]	87.1 [81.9,91.0]	12.9 [9.0,18.1]
Middle quintile	96.5 [93.6,98.1]	3.5 [1.9,6.4]	88.6 [83.7,92.2]	11.4 [7.8,16.3]
Second highest quintile	97.9 [95.7,98.9]	2.1 [1.1,4.3]	87.8 [82.9,91.5]	12.2 [8.5,17.1]
Highest quintile	96.5 [93.8,98.0]	3.5 [2.0,6.2]	92.0 [86.9,95.2]	8.0 [4.8,13.1]
Design-based F(3.99, 11453.75) = 1.85; p = 0.1172 (females) Design-based F(3.99, 11453.47) = 0.74; p = 0.5663 (males) Cell entries are weighted percentages and 95% confidence intervals.				

Conclusions and Recommendations

For composite measures of conventional and Asian Indian-specific tobacco products, it is apparent that various measures of acculturation are related to the adoption of tobacco use. The relationships are generally but not completely linear, with increasing use of tobacco as "westernization" progresses. Degree of religiosity is protective against tobacco use but Chapter 4 showed that the degree of religiosity tends to get compromised by the transition in acculturation from feeling "mostly like an Indian" to feeling "mostly like an American."

The "hydraulic" model of how culture affects tobacco use was NOT supported in Asian Indian women. The "hydraulic" model assumed that the same predictors of tobacco use (e.g., religiosity, educational attainment) in India would predict tobacco use in the U.S. but that the nature of the tobacco used would depend on acculturation. For those predisposed by lack of religiosity and by low educational attainment to use tobacco, the level of U.S. conventional tobacco use was expected to be inversely related to the individual's use of Asian Indian-specific tobacco products and both were expected to be influenced by acculturation. In practice, however, Asian Indian-specific tobacco products were used MORE, not less, by those Asian Indian women respondents who were more acculturated. These same women reported higher use of tobacco products conventionally used in the U.S., with increasing acculturation. For Asian Indian immigrant women, then, "westernization" was associated with decreased religiosity and with increased use of all tobacco products, India-specific, and U.S. conventional tobacco products.

As a living laboratory for the study of how social norms and cultural practices can protect members of an ethnic group from tobacco use, Asian Indians in California represent a model for other ethnic groups to emulate. Their enviably low rates of current cigarette use demonstrate that other ethnic and cultural communities in the U.S. can achieve the Healthy People 2010 goals for reducing adult regular tobacco use if their social norms and cultural practices discourage tobacco use.

Once they have become regular users, however, California Asian Indians' tobacco use habit seems no longer to be significantly affected by measures of cultural identification such as language preference, duration in the U.S., cultural self-identification or religiosity. The lesson public health intervenors can take away from these results is that the time to capitalize on the protective benefits of traditional culture vis a vis tobacco use is before the (young) California Asian Indian has had a chance to begin the tobacco habit. Once adopted, the tobacco use habit is likely to be as amenable to "western" cessation strategies as it would be to any culturally-specific tobacco control strategy.

Chapter 5 Conclusions and Recommendations

- Key findings
- Conclusions
- Recommendations

Key Findings

- By most measures, tobacco use rates are enviably low among Californians of Asian Indian ancestry, especially women. Both Asian Indian women (1.9% current smokers) and men (8.7% current smokers) have achieved rates below the Healthy People 2010 goal of less than 12%.
- For those few California Asian Indians who are susceptible to initiating tobacco use, the time of greatest danger appears to be during the college years, a period that was once considered "safe" for those who were lifetime never smokers.
- Even for those few Californians of Indian ancestry who do become regular users of tobacco, the quit rate is higher than for most U.S. smokers, at least among the men.
- Despite the fact that most respondents had grown up in India, rates of lifetime use of at least 100 bidis were surprisingly low and rates of cigar use were surprisingly high, given the ubiquity of bidis and the rarity of cigars in India.
- Different measures of acculturation consistently show increased risk of tobacco use as California Asian Indians move away from traditional Asian Indian cultural practices and adopt cultural practices more similar to those prevailing in the U.S. Second generation Asian Indian women are particularly at risk of increased tobacco use compared to first generation immigrant Asian Indians.
- Contrary to patterns observed within India and within native-born U.S. residents, educational attainment in this mostly immigrant population was associated with increased lifetime use of aggregated Indian-specific and U.S.-specific tobacco products. One possible explanation for this was decreased religiosity in the highly educated. Religiosity was protective against tobacco use, especially in women, but was negatively related to educational attainment. For bidi tobacco, however, the more usual inverse relationship between tobacco use and educational attainment held for men. For the women, bidi use was uniformly nearly nonexistent, no matter how educated they were.

Conclusions

By most measures, tobacco use rates are enviably low among Californians of Asian Indian ancestry, especially women. Both Asian Indian women (1.9% current smokers) and men (8.7% current smokers) have achieved rates below the Healthy People 2010 goal of less than 12%. The social, economic, cultural and religious norms prevalent in Californians of Asian Indian ancestry, most of whom are recent immigrants, appear to protect them from all forms of tobacco use, including Indian-specific tobacco products. Educational attainment, on the other hand, was associated with increasing risk of tobacco use.

Despite levels of tobacco use that are low compared to smoking rates in other ethnic groups, there should nevertheless be concern about Second-plus generation California women of Asian Indian ancestry, because increasing acculturation appears to increase their risk of tobacco use.

Even for those few Californians of Indian ancestry who do become regular users of tobacco, the quit rate is quite high, at least among the men. This high abstinence rate observed among Asian Indian ever smokers is consistent with their relatively high rate of intermittent smoking (as opposed to daily smoking), their late age of initiation, and the relatively low number of cigarettes that they smoked per day (e.g., Breslau et al., 1996; Henderson et al., 2004; Dale et al., 2001).

The high educational achievement and high household income of English-speaking Asian Indian immigrants "protect" them from using India's most popular and ubiquitous form of tobacco use, namely bidis. However, these demographic characteristics of the upper class may also put them at risk of using a tobacco product not specific to India but one that is popularly associated with membership in high society, namely cigars. Rates of lifetime use of at least 100 bidis were surprisingly low and rates of cigar use were surprisingly high, given the ubiquity of bidis and the rarity of cigars in India.

The difference within this population in prevalence of reported bidis use compared to reported cigar use is a striking riposte to the contention that tobacco use can be likened to a contagion, that is, the greater the exposure, the greater the use. In fact, bidis are very common in India whereas cigars are generally foreign-made and expensive. Despite the relative ease of access to bidis when they lived in India, far fewer California Asian Indians have ever smoked bidis than have smoked a cigar. One possible explanation for this paradox is that bidis are favored by lower class Indians. Any Asian Indian aspiring to be regarded as a member of the upper class will be loath to use a product so clearly associated with the lower classes. If this explanation is correct, then it suggests that proscriptive social norms can be more powerful than decreasing physical access as a way to protect individuals from experimenting with specific tobacco products.

The California Asian Indian adult woman can serve as a model for how to protect oneself from tobacco use. There are warning signs, however, that this may change for later generations of home-grown California Asian Indian women. In the case of tobacco use, the health disparity between first generation men and women favors the women. Acculturation to U.S. social norms and cultural practices brings many political, social, and economic benefits but it also appears to be associated with convergence of tobacco use practices between Asian Indian men and women. A challenge facing nearly all immigrant women, not just women of Asian Indian ancestry, is how to preserve traditional cultural norms that protect women from tobacco without having to forgo the benefits of full participation in the cultural life of Americans.

For those few California Asian Indians who are susceptible to tobacco use, the time of greatest danger appears to be the college years. Tobacco marketers have increasingly focused on the college-age population in recent years, in response to increasing government restrictions on marketing tobacco products to children.

The primary benefit to Californians in learning more about tobacco use by Californians of Asian Indian ancestry is to learn more about how cultural norms may protect individuals from becoming addicted to tobacco use.

Californians of Asian Indian ancestry are protected from being addicted to tobacco use in large part because they never started regular tobacco use. Asian Indians represent a counter-example to the one-time suspicion that tobacco use was so addictive that a single exposure could result in lifelong addiction. They represent a good counter-example because many Indians may be inadvertently exposed to tobacco in the form of a constituent of some types of paan, a product that most adult Indians have consumed at least once in their lives, typically at social gatherings. Non-tobacco users may consume tobacco-containing paan served at parties without being aware that tobacco is one of the constituents making up the paan. Despite higher than average rates of inadvertent exposure to tobacco, Californians of Asian Indian ancestry report lower than average rates of current tobacco use.

Recommendations

Government and non-government organizations would do well to learn from the California Asian Indian experience and apply what is learned from that experience to protect members of other ethnic minority groups with a high proportion of members who are recent immigrants.

Government and non-government organizations such as the American Cancer Society (ACS) need to focus more efforts on discouraging tobacco use among college-age youth, as that is the age when our respondents reported the highest rate of initiating any use of conventional tobacco. Public health intervenors should target tobacco control messages to venues frequented disproportionately by young smoking adults, such as bars and community colleges.

Government and non-government organizations should do more to discourage cigar use, because the same Asian Indian youth who shun cigarettes and Indian specific tobacco products seem to find cigars socially acceptable.

Government resources and the resources of non-government organizations such as the ACS should increase efforts to infuse immigrant services with anti-tobacco use messages, such as including tobacco control messages in English-as-a-Second-Language (ESL) classes.

Tobacco control efforts need to focus more on discouraging cigar use. Many Californian Asian Indians succeeded in dodging addiction to cigarette smoking and to Indian-specific tobacco products only to become users of cigars. To be sure, the frequency of cigar use is still low in this group, but it appears to be a more successful entrée to tobacco use for this group than any other tobacco product.

The remarkably low rates of current smoking among California Asian Indian women (and California Chinese women) should be widely publicized as models for other groups to emulate. Without resorting to draconian laws and restrictions on civil liberties, California Asian Indian women have succeeded in maintaining tobacco use rates at such low levels that they resemble the rates of current illicit drug use among U.S. adults. Society may benefit by reverse-engineering how cultural and social norms protect California Asian Indian women from becoming tobacco users and then applying what is learned to protect women (and men) in other U.S. ethnic groups. The most important lesson for public health intervenors from these findings is that the social norms and cultural practices associated with ethnicity are important influences on tobacco use. With regards to tobacco control, Asian Indians in California appear to be a model. They have provided a living laboratory validation that the Healthy People 2010 goal of reducing regular adult tobacco use can be achieved in a free-living population.

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Appendices

Appendix 1.A Map of India

Appendix 1.B Indian Diaspora
List of Countries that Indians Emigrated to

Report of the High Level Committee on the Indian Diaspora, December 2001

ESTIMATED SIZE OF OVERSEAS INDIAN COMMUNITY: COUNTRY-WISE

Country	PIOs	Indian citizens	Stateless	Total
Afghanistan	500			**500**
Algeria	5	40		**45**
Andorra		200		**200**
Angola	45	250		**295**
Argentina	1,200	400		**1,600**
Armenia		200		**200**
Australia	160,000	30,000		**190,000**
Austria	3,005	8,940		**11,945**
Azerbaijan		250		**250**
Bahrain	Nil	130,000		**130,000**
Barbados	2,100	100		**2,200**
Belarus		70		**70**
Belgium	Nil	7,000		**7,000**
Belize	500			**500**
Benin	450			**450**
Bhutan		1,500		**1,500**
Botswana	3,000	6,000		**9,000**
Brazil	1,500	400		**1,900**
Brunei	500	7,000	100	**7,600**
Bulgaria		20		**20**
Burundi	300			**300**
Cambodia	150	150		**300**
Cameroon	250			**250**
Canada	700,000	150,000	1,000	**851,000**
Cape Verde	4			**4**
Chad	125			**125**
Chile	39	611		**650**
China	5	300		**305**
Colombia	1	19		**20**
Comoros	50			**50**
Costa Rica	1	15		**16**

Country	PIOs	Indian citizens	Stateless	Total
Cote d'Ivoire	30	270		**300**
Croatia	10			**10**
Cyprus		300		**300**
Czech Republic	20	400		**420**
Denmark	900	1,252		**2,152**
Djibouti	280			**280**
Dominica		20		**20**
Ecuador		5		**5**
Egypt	40	1,350		**1,390**
Eritrea	30	1,723		**1,753**
Ethiopia	34	700		**734**
Fiji	336,579	250		**336,829**
Finland	410	750	10	**1,170**
France	55,000	10,000		**65,000**
G.Bissau	25			**25**
Gambia	135			**135**
Germany	10,000	25,000		**35,000**
Ghana	2,000	1,800		**3,800**
Greece		7,000		**7,000**
Guadeloupe	40,000			**40,000**
Guatemala	22			**22**
Guyana	395,250	100		**395,350**
Hong Kong	28,500	22,000		**50,500**
Indonesia	50,000	5,000		**55,000**
Iran		800		**800**
Iraq	50	60		**110**
Ireland	600	1,000		**1,600**
Israel	45,000	300		**45,300**
Italy	36,000	35,500		**71,500**
Jamaica	60,000	1,500		**61,500**
Japan	1,000	9,000		**10,000**
Jordan	30	900		**930**
Kazakhstan		1,127		**1,127**
Kenya	85,000	15,000	2,500	**102,500**
Korea(DPRK)		5		**5**

Country	PIOs	Indian citizens	Stateless	Total
Korea(ROK)	200	2,500		**2,700**
Kuwait	1,000	294,000		**295,000**
Kyrgyzstan	100			**100**
Laos	18	107		**125**
Lebanon	25	11,000		**11,025**
Libya	400	12,000		**12,400**
Lithuania		5		**5**
Madagascar	25,000	3,000	1,000	**29,000**
Malaysia	1,600,000	15,000	50,000	**1,665,000**
Maldives	1	9,000		**9,001**
Mali	20			**20**
Mauritius	704,640	11,116		**715,756**
Mexico	400			**400**
Mongolia		35		**35**
Morocco	25	350		**375**
Mozambique	20,000	870		**20,870**
Myanmar	2,500,000	2,000	400,000	**2,902,000**
Namibia	32	78		**110**
Netherlands	200,000	15,000	2,000	**217,000**
New Zealand	50,000	5,000		**55,000**
Nigeria	8,000	17,000		**25,000**
Norway		5,630		**5,630**
Oman	1,000	311,000		**312,000**
P. N. Guinea		1000		**1000**
Panama	211	1,953		**2,164**
Peru	10	135		**145**
Philippines	24,000	2,000	12,000	**38,000**
Poland	75	750		**825**
Portugal	65,000	5,000		**70,000**
Qatar	1,000	130,000		**131,000**
Reunion Islands	220,000	55		**220,055**
Romania	2	489		**491**
Russia	44	16,000		**16,044**
Saudi Arabia		1,500,000		**1,500,000**

Country	PIOs	Indian citizens	Stateless	Total
Senegal	13	8		**21**
Seychelles	2,000	3,000		**5,000**
Singapore	217,000	90,000		**307,000**
Slovakia		100		**100**
Solomon Islands		20		**20**
South Africa				**1,000,000**
Spain	16,000	13,000		**29,000**
St. Lucia		200		**200**
St.Vincent & The Grenadines		160		**160**
Sudan	300	1,200		**1,500**
Suriname	150,306	150		**150,456**
Sweden	9,000	2,000		**11,000**
Switzerland	8,400	4,800	300	**13,500**
Syria	1,800			**1,800**
Taiwan	1,800			**1,800**
Tajikistan	nil	400		**400**
Tanzania	85,000	5,000		**90,000**
Thailand	70,000	15,000		**85,000**
Trinidad & Tobago	500,000	600		**500,600**
Tunisia		70		**70**
Turkey		300		**300**
UAE	50,000	900,000		**950,000**
Uganda	7,000	5,000		**12,000**
UK				**1,200,000**
Ukraine		3,400		**3,400**
USA				**1,678,765**
Uzbekistan	40	650		**690**
Vanuatu		50		**50**
Venezuela	400	280	10	**690**
Vietnam		320		**320**
Yemen	100,000	900		**100,900**
Zambia	10,000	3,000		**13,000**
Zimbabwe	15,500	1,200		**16,700**

Appendix 1.C

Number of adult Asian Indians enumerated in census, sample frame, final sample, by the Tobacco Control Section (TCS) Region						
TCS-defined regions*	**2000 Census Number**	**Percent of state total**	**Sample frame total Number**	**Percent of sample frame total**	**Final sample Number**	**Percent of final sample total**
Los Angeles	71,265	19.8	11,290	18.8	541	16.8
San Diego	12,145	3.4	2,991	5.0	131	4.1
Orange	30,464	8.5	4,722	7.9	261	8.1
Santa Clara	70,159	19.5	11,163	18.6	787	24.4
San Bernardino	8,739	2.4	1,371	2.3	54	1.7
Riverside	6,612	1.8	1,278	2.1	48	1.5
Alameda	47,194	13.1	7,602	12.7	461	14.3
Contra Costa, San Francisco, San Mateo, Marin, Solano	37,711	10.5	6,878	11.5	356	11.0
Fresno, Imperial, Kern, Kings, Madera, Mariposa, Merced, Tulare	19,963	5.5	2,689	4.5	121	3.8
Alpine, Amador, Butte, Calaveras, Colusa, Del Norte, El Dorado, Glenn, Humboldt, Inyo, Lake, Lassen, Mendocino, Modoc, Mono, Napa, Nevada, Placer, Plumas, Shasta, Sierra, Siskiyou, Sutter, Sonoma, Tehama, Trinity, Tuolumne, Yuba	13,832	3.8	2,521	4.2	120	3.7
Sacramento, San Joaquin, Stanislau, Yolo	31,988	8.9	5,602	9.4	238	7.4
Monterey, San Benito, San Luis Obispo, Santa Barbara, Santa Cruz, Ventura	9,792	2.7	1,816	3.0	110	3.4
Totals	359,864	100.0	59,923	100.0	3,228	100.0

*Note. The regions were defined by staff at TCS and have been used analytically and programmatically in previous California Tobacco Control projects. The regions were formed in such a way that all 58 California counties were grouped into 12 regions, grouped by demographic and economic similarity to other counties. The requirement of demographic and economic similarity meant that some counties comprising the 12 regions were not contiguous.

The first two principal components accounted for 83% of the variation in the demographic data and were used to create two scores. The first score was roughly a measure of each county's economic status and included the distribution of household income, poverty, and educational attainment, along with Medi-Cal status. The second score was roughly a measure of each county's demographic distribution and included the distribution of age, race, and population density. The counties were then allocated into regions based on these two scores and the desire to have between 10-12 regions. An example of the use of these regions to assess potential differences in tobacco prevalence rates by TCS regions can be found at: http://www.dhs.ca.gov/tobacco/documents/ietp01-02.pdf.

Chi square goodness-of-fit statistics were used to evaluate comparisons between the Census distribution, the sample frame distribution, and the distribution of the final obtained survey sample. The distributions of both the sample frame (chi square (11) = 675, $p < .0001$) and the obtained survey sample (chi square (11) = 105.6, $p < .0001$) were significantly different from the distribution expected on the basis of the 2000 Census statistics. These differences reflect non-coverage in the sample frame distribution (e.g, unlisted numbers, households that moved too recently to be included in the most recent phone directory) and both non-coverage (e.g., never home when called) and non-response in the obtained survey sample (e.g., refusals). To achieve better representativeness of the data, the distribution of that part of the obtained survey sample consisting of respondents who were in California at the time of the 2000 Census was weighted so that the resulting distribution resembled the distribution of Asian Indian residents in California as captured by the 2000 Census. For more details concerning the post-stratification weighting, please see Appendix 2.G. – Data analysis methodology.

Appendix 2.A

Names comprising Asian Indian sampling frame and how they were obtained

Surnames used for the California Asian Indian Tobacco Use Survey were compiled from two sources. First Lauderdale et al, (2002) reported 2,797 unique names linked to country of origin (India) from Social Security names. This file was publicly available to researchers and was easily obtained from the authors. These names represented only the surnames of Asian Indian immigrants with work history in the United States (U.S.), however.

To find a list of surnames more representative of California Asian Indians, we contacted the Vital Statistics Office for the Department of Health Services, which maintains birth and death records for the entire state. Their records contain specific information on race, gender, and personal identifiers of parent(s) of children born in the state for each year. A request was made to obtain a complete list of surnames identified as Asian Indian of mothers and fathers registered in the database for the years 1998-2002 inclusive. The resulting list of surnames contained 9,829 unique surnames of Asian Indian mothers or fathers of births that occurred from 1998 through 2002 in California. To protect the privacy of these records, other identifying information, such as first name of parents, address, birth dates, etc. were not requested, just their surnames and the frequency with which those surnames appeared in their records. The computer runs required to generate these names were conducted by staff working in the Vital Statistics Office. Their time was reimbursed by the research project.

When both lists were combined and names shared by both lists were identified, the list consisted of 11,453 unique names. Serial rounds of cleaning and removal of names which possibly overlapped with names of European, Hispanic, or Asian origin were conducted. Each possible name was reviewed by two of the investigators, who were familiar with Asian Indian names and who were sensitive to what authentically Indian names might nonetheless be confused with non-Asian Indian names, such as "Ray" and "Shaw." as well as those non Asian Indian surnames. Names for which uncertainty arose, a look up in the Yahoo online telephone directory assisted in determining whether the surname in question was used predominately among Asian Indians. The algorithm used to determine if a candidate name was likely to yield a high enough proportion of individuals with authentically Asian Indian backgrounds was to count the number of Asian Indian first names that were associated with the surname. If more than 50% of the mentions of a particular surname were associated with recognizably Asian Indian first names, then the surname was marked for retention in the list.

Other sources of surnames had been considered, including current telephone directories of major Indian cities, notably Mumbai. We did secure an electronic copy of the Mumbai telephone directory. The database comprising the Mumbai listings required sophisticated programming to enable the listings to be evaluated using general purpose statistical analysis software (STATA). The resulting listings were rife with non Asian surnames because, Mumbai, after all, is a popular site for international trade and attracts individuals with surnames reflecting a wide assortment of non-Asian Indian cultures. After painstaking manual effort to weed out most of the non-Asian Indian names, the Mumbai directory yielded 28,259 unique surnames. Comparison of this list with the Lauderdale and California birth registry lists showed that, despite its size, the Mumbai directory still did not match with the majority of Asian Indian names recorded in the U.S. In retrospect this should not have surprised us because Mumbai is on the west coast of the Indian subcontinent, many hundreds of miles from such major population centers as Bangalore, Kolkata (Calcutta), Hyderabad, and Chennai (Madras), each of which are associated with different languages and different surnames. One Indian city's directory cannot be expected to reflect the huge variety of surnames that one can find in traveling across India's 200 linguistically different regions, even a city as cosmopolitan as Mumbai. We decided that it was most expedient to go with those lists of Asian Indian surnames already documentably present in the U.S. and to ignore the many more surnames that exist in India but possibly not in the U.S.

The final list of candidate Asian Indian surnames consisted of 10,864 surnames. The survey subcontractor, California Survey Research Services, then contracted with Survey Sampling, Inc. of Hartford, CT, to match these names to current California telephone listings. The resulting sample yielded 83,619 listings. After a first draw from these listings of 29,600, a review of the most frequent names indicated a few that were recognizably not Asian Indian, notably the surname "Chen," which is a popular Chinese surname in California. An additional 102 names were therefore removed from the list of candidate Asian Indian surnames, with the result that the candidate list of Asian Indian surnames was now reduced to 10,762 names and the resulting sample frame was reduced to 59,923 California listings, which comprised the final sample frame.

Reference

Lauderdale DS, Kestenbaum B. Asian American ethnic identification by surname. *Population Research and Policy Review*. 2000;19:283-300.

List of candidate Asian Indian surnames used to generate sample frame

Note. These Asian Indian surnames were derived from two lists, a California-specific list, and a U.S. Social Security Administration list described in Lauderdale and Kestenbaum, 2000. (reference given above).

The California List includes surnames of self-identified Asian Indian parents whose child was born in California between 1998 and 2002 inclusive. Six hundred ninety-one (n=691) names were dropped from the obtained list because they coincided with non Asian Indian names.

The Lauderdale list is described in Lauderdale and Kestenbaum, 2000. One name was dropped from this list because it coincided with non-Asian Indian names.

Appendix 2.B Focus Groups

Four focus groups were conducted to test survey items that were not taken from the California Adult Tobacco Survey (CATS). Such questions included questions about Asian Indian specific tobacco products, acculturation, and religious practices and beliefs.

Each of the four focus groups was designed to represent a culturally distinct group of Asian Indians. Efforts were made to recruit individuals who fell into the following four categories: first generation Asian Indian American males, first generation Asian Indian American females, second generation Asian Indian American males, and second generation Asian Indian American females.

Initially, recruitment efforts took the form of posting flyers in Asian Indian stores and businesses in Artesia, California, in a neighborhood also known as "Little India". Although the flyers indicated that focus group times were flexible and a $20 gift card would be offered as an incentive, we received few inquiries from that posting. Word of mouth was then used as a method of recruitment. The number of individuals who participated in each group were: 10 first generation Asian Indian American males, 10 first generation Asian Indian American females, 10 second generation Asian Indian American males, and 10 second generation Asian Indian American females.

The attached recruitment script was used to address potential focus group participants. The Script to Determine Eligibility was used to ensure that interested individuals were of Asian Indian ancestry, at least 18 years of age, and to determine their generational status and gender.

A focus group guide was used to structure the discussion (see attached focus group guide). The content of the Focus Group Guide included a brief description of the study, discussion of Indian specific tobacco use products, who uses them, how much they cost, where they are typically sold in California, and social customs surrounding the specific product. In addition, participants were asked for their input on specific items of the survey instrument to suggest modification in wording as well as content. Recommendations for change in items can be seen in the document, Recommended Modifications for Questions on Indian Specific Tobacco use, Acculturation, and Religiosity.

Script To Determine Eligibility

Thank you for your interest in participating in our focus groups. Before I can sign you up, I would like to ask you a few questions to make sure you are eligible to participate in the focus groups. May I begin?

1. What is your age?

2. In which country were you born in?
   (If respondent was born in India, go to Question #3)
   (If respondent was born in a country other than the U.S. or India, politely thank them and tell them they do not meet the eligibility criteria.

3. How old were you when you came to the U.S.?

4. Gender (to be determined over phone) ❑ Male ❑ Female

5. The focus group will last for approximately an hour and a half and will be on a weekday evening.
   Will that be okay with you?

6. You will receive a $20 gift card for participating in the focus group, if that's okay with you.

If person meets eligibility criteria, inform them of the date, time, and location of the focus group.

Focus Group Introductory Script

[California Asian Indian Tobacco Survey]

I would like to welcome all of you, and thank you for taking the time to join us. I'd like to start today by sharing a bit about why I'm here.

We are hoping that a few of you would be interested in participating in an important discussion group that is part of a study to find out how many Indians in California use tobacco products. As part of the discussion, you would answer questions on what Indian tobacco products you use, if any, and have used in the past such as cigarettes, bidis, paan/ paan masala, and gutkha. We are inviting you to participate because we really want to kno w your ideas and opinions of the questions that are included in the study. We will use the information you tell us to guide our study plans and help our study meet the needs of Asian Indians living in California.

Each group will meet _____ for about one and a half hours in a meeting room and will be led by a trained discussion group leader. There will be approximately 10 adults in each group. Everything you say in the groups should remain confidential. Each person who participates in the discussion groups will receive a gift certificate for a grocery/ discount store valued at $20.00 for their participation.

Focus Group Guide

Introduction: who we are, purpose of focus group, ground rules (5 minutes)

Hello, my name is _____, and I am part of a special research team at UCLA that is studying Asian Indians. I would like to welcome all of you, and thank you for taking the time to join us. I'd like to start today by explaining why I am here. This discussion group is part of a study that tries to determine how many Indians in California use tobacco-containing products. The study will be conducted over the phone and will sample 3,000 Indians out of 314,000 living in California. The study is run by the University of California at Los Angeles as well as the Santa Clara County Public Health Department and assisted by the South Asian Network.

As part of this discussion group, we will be talking about Indian specific tobacco-containing products as well as acculturation. Each of you has been invited because we really want to know your ideas and opinions. We will use the information you tell us to guide our study plans and make it meet the needs of Indians living in California.

We would like you to tell us about your experiences and encourage you to feel free to say whatever is on your mind. There are no right or wrong answers to any of the questions that I may ask you today- there are only different experiences and opinions. Please tell us what you think, even if it is different from what others have said. This is your chance to say what you feel.

I would like to have a few ground rules for our discussion today, so that everyone feels comfortable to speak freely. Here are the ground rules that I think are important:

- Only one person talks at a time so that we can hear everyone's thoughts and opinions.
- Respect what other people say
- What is said in this room stays in this room
- Other ground rules from participants

As you can see, we are taping our group today so that I can listen to what you say without trying to write it down while you are talking. _____, who is assisting me today, will be taking a few notes so that we don't miss any of the important things that you tell us today. I want to remind you that no one but the people here and the research team will know what you have said, and we ask that you do not share the responses you hear today with others when you leave. We will be here for about an hour and a half, and will finish at _____. At the end of the group, as a thank you for participating, you will receive a gift certificate to _____ worth $20.00. Nothing you say here will affect whether you receive the voucher at the end of the group- so please be honest!

Are there any questions before we begin?

Discussion Questions (II): Continued dialogue about Indian tobacco-containing products. (20 minutes)

I would now like to ask some brief questions about some of these products that were on the questionnaire.

3. What are some brand names for these products?

   (Probe for both Indian and American brand names for each separately)

   A. Bidis

   B. Paan Masala

   C. Gutkha

   D. Snuff

   E. Others?

Now let's specifically talk about paan masala.

4. Do you believe that the ingredients in paan masala, not including the tobacco, can cause cancer?

5. Some people like to chew paan masala with tobacco in it. How would someone know if there was tobacco in his or her paan masala? (Probe for ways to distinguish such as different color of wrapper, taste, verbal information, etc)

6. Where can people obtain paan masala with tobacco in it? (Probe for Indian grocery stores and movie theatres, weddings/ fesivals/celebrations, etc)

7. Is it common for people who make paan masala at home to put tobacco in it?

8. Do you feel like it is rude to refuse paan masala at special occasions/parties?

Now let's talk about bidis.

9. Do you see many Indians smoking bidis?

10. Where can people buy bidis?

11. How much do they cost?

Now let's talk about guthka.

12. Where can you buy guthka?

13. How much does it typically cost?

14. Where do people usually consume guthka?

15. Is it rude to refuse guthka if someone offers?

Discussion Questions (III): Participant dialogue about Indian acculturation into American society. (10 minutes)

Now let's talk about acculturation. Acculturation is defined as how people from a certain culture, such as India, change their attitudes, values, and behaviors after living in another culture, such as America.

16. How would you define an Indian person in the U.S. to be acculturated? *(Probe for lack of accent, ability to speak English fluently, adoption of behaviors such as smoking, drinking, gambling, etc.)*

17. How would you define an Indian person in the U.S. as being traditional? *(Probe for Indian clothes, music, food, language retention)*

Respondent Introductions: Participant introductions.

Let's begin by going around and everyone saying their first name and if you feel that tobacco use in Indian-Americans is high or low compared to White- Americans in California.

Discussion Questions (I): Participant dialogue about Indian tobacco-containing products (10 minutes).

Let's start off by talking about some of the tobacco-containing products that Indians in the U.S. use.

1. Please describe these products (such as their mode of ingestion, ingredients…)

Probe for:

❑ Bidis

❑ Paan/ paan masala

❑ Pan Parag/ Gutkha

❑ Cigarettes

❑ Snuff (grandmothers)

a) [IF NEEDED] What about _____? (those listed above that aren't mentioned by participants) Are they considered tobacco-containing products? Why or why not?

2. Who predominantly uses these products?

Probe for:

❑ Men

❑ Women

❑ Age groups/ generational status

❑ Older immigrants/ newer immigrants

Written Questionnaire (I): Written survey questions pertaining to Indian tobacco-containing product usage and behavior. (10 minutes)

I am now going to hand you a sheet of paper that has questions about tobacco-containing products. Please answer them to the best of your ability. We will discuss them after everyone is done. Distribute questionnaire. Has everyone finished? Good. Now I want to ask everyone if all the questions on this sheet were clear. If any were unclear, why?

Written Questionnaire (II): Written survey questions pertaining to Indian acculturation into American society. (10 minutes)

I am going to hand you another sheet of paper; this one has questions about acculturation. Please answer them to the best of your ability. We will discuss them after everyone is done. *Administer questionnaire.* Has everyone finished? Good. Now I want to ask everyone if all the questions on this sheet were clear. If any were unclear, why?

Discussion Questions (IV): Continued dialogue about Indian acculturation into American society. (10 minutes)

Now I want you to look at questions 1 and 2 on your sheet. Do you think the combination of these two questions will give us an indication of how acculturated an Indian person in the U.S. is? Why or why not? Are there better examples that you can think of that may demonstrate masculinity (maleness) or femininity (femaleness) in Indian terms?

Please look at question 3. Do you feel that observing traditional holidays can give us an indication as to how acculturated someone is?

Now, please look at questions 5-8. What are your thoughts on these questions? Do you feel they will tell us how acculturated someone is?

Discussion Questions (V): Participant dialogue about Indian religiosity. (7.5minutes)

Now let's talk about measuring how religious someone is. What are some of the ways you can think of to measure someone's religiosity?

Written Questionnaire (III): Written survey questions pertaining to Indian acculturation into American society. (7.5 minutes)

This is the final written questionnaire of the session. Like the previous two, please answer them to the best of your ability and then we will have a brief discussion. *Administer questionnaire.* Now I want to ask everyone if all these questions were clear. If any were unclear, why?

Closing: Thank you and incentive distribution

On behalf of our entire project staff, I want to thank you for your time and valuable input in making this study a success. Are there any final questions that you may have?

As mentioned earlier in the session, _____ will hand you your $20 gift card as you exit the front door to show our gratitude for your participation. Again, thank you.

Recommended Modifications for Questions on Indian Specific Tobacco use, Acculturation, and Religiosity

Based on focus group findings, 2004

Indian specific tobacco use products

- ❑ Both second generation male and females suggested that we include cloves. They are perceived as "starter" cigarettes because of their taste and lead to smoking regular cigarettes.

- ❑ Questions 56-58: Change the wording to:

  56. Do you chew paan with lime, also known as chunnam/ chuni?

      Instead of: _____
      Do you chew paan with lime or chunnam/ chuni?

  57. Do you chew paan with tobacco, also known as zarda or kathi?

      Instead of: _____
      Do you chew paan with tobacco or zarda or kathi?

  58. Do you chew paan with areca nut, also known as betel nut or supari?

      Instead of: _____
      Do you chew paan with areca nut or betel nut or supari?

- ❑ Questions 59 and 60 are confusing and need to be reworded:

  59. Do you chew paan with two or more of the above ingredients?
      Respondents suggested that we reword the question to:
      "Do you chew paan with any two of the above ingredients (lime, betel nut, tobacco)?"

  60. Do you chew paan without any of the above ingredients mentioned?
      What is the purpose of this question? If we are trying to identify if the respondent consumes tobacco with their paan, it is captured in question #57. What will we do with this data if we don't know the specific ingredient anyways?

Acculturation questions

- ❑ Question 67: expand answer choices
  Did you last live in an urban or rural community when living in India?
  1. Urban
  2. Rural

Respondents felt that the answer choices were too limiting. Respondents suggested the breakdown to be:

1. Village
2. Town
3. City

The question would then read: Did you last live in a village, town, or city when living in India?

Questions on religion

- ❑ Question 68: Including Ba'hai
  Respondents suggested that we could include Ba'hai as one of our listed religions.
  However, I do not agree. The numbers of those who practice this faith are extremely small and can be captured in "other".

- ❑ Question 69
  How frequently do you stop and pray or participate in a religious observance?
  This question had mixed reactions. A suggestion from the 2nd generation male focus groups was to change the wording to: _____
  How frequently do you stop and pray or partake in a religious observance?

  Numerous suggestions were made by the 2nd generation female focus group to include a **self-rating question** to measure one's own religiosity because it is very subjective.

- ❑ I found the following questions in a study that measured religiosity in African- Americans:
  For the following items below: the response scale is strongly agree, agree, disagree, and strongly disagree:

  - I rely on God to keep me in good health
  - I talk openly about my faith to others
  - I often read religious books, magazines or pamphlets
  - I often watch or listen to religious programs on TV or radio
  - My spiritual beliefs are the foundation of my whole approach to life
  - I am often aware of the presence of God in my life.
  - I have a personal relationship with God
  - When I am ill, I pray for healing.
  - I pray often.

  I rely on God to keep me in good health:
  Members of the 2nd generation focus group felt like this statement was too passive, as if you had blind faith in God.
  Suggestions were made to change it to:
  "I pray to God to keep me in good health"

  I often watch or listen to religious programs on TV or radio
  Members of the 2nd generation male and female focus groups felt like this was not applicable to the Asian-Indian community. I agree with them on this point, and I feel that this question should be discarded.

  My spiritual beliefs are the foundation of my whole approach to life
  Suggestions were made to take out the word "whole". It would then read as:
  My spiritual beliefs are the foundation of my approach to life.

  I am often aware of the presence of God in my life.
  Respondents liked this question

I have a personal relationship with God

Some respondents felt like this question was redundant (with previous question) and felt the one right above it was a better question. However, I don't agree- both of these questions were well received in the other three focus groups.

When I am ill, I pray for healing.

Respondents felt like this was too similar to the first question. If given a choice, they preferred the first question.

I pray often.

Respondents felt that this question was too similar to question #69. I agree with this and feel that this question should not be included.

Respondents also suggested that a numeric scale be used for this item, or even yes/no answer choices.

Acculturation questions (continued)

- ❑ Questions 70 & 71

70. How comfortable do you feel having boys do the same household tasks as girls, such as sewing, cooking, or cleaning?

71. How comfortable do you feel having girls do the same family chores as boys, such as taking out the garbage, fixing the car, and mowing the grass?

In general, this set of questions received negative feedback. The 1st generation male focus group suggested that we should change the examples. For girls, we should replace mowing the grass with handling the finances and for boys we should replace sewing with laundry or grocery shopping.

Respondents in the 1st generation female focus group said that they saw these as tasks, not necessarily as cultural issues. They suggested that we should focus on attitude and behavior instead of tasks. They also felt that times are changing in India and men help out more there.

Both of the 2nd generation male and female focus groups felt that a lot of Americans hold these patriarchal views as well. It was also noted that even in India, the roles are becoming more blurred with women entering the workforce.

Respondents in the 2nd generation male focus group said that the chores were irrelevant because he felt that most Indians do not mow their own lawns, fix their own cars, or clean their own houses.

Most groups said that a more accurate indicator of acculturation would be to capture how **comfortable or open the respondent would be to dating/marriage outside their own culture.** The 2nd generation female focus group suggested:

How open would you be to your son/ daughter marrying outside of your ethnic group?

They felt that this question could be applied to both generations and would be an accurate measure of how acculturated someone was to the U.S.

- ❑ Question 72

Do you observe the traditional holidays considered important to your parents?
In general, this question was received positively.
Suggestions were made to reword the question to:
Do you observe the traditional holidays that are considered important in your culture?
Or: Do you observe the traditional holidays considered important to your family?

- Question 73

  Self- definition question.

  This question was by far the most well received. No changes or suggestions.

- Questions 76-79

  76. When you listen to music, is it ever Indian music?
  77. When you read newspapers, magazines, or books, are they ever Indian?
  78. How much contact do you have with family members and friends in India?
  79. How often do you eat Indian food?

  Suggestions were made to make the answer scale from 1-5 instead of 1-7.

  Also, we can add websites to question #77.

  Other questions that were suggested to be added were:

  How comfortable are you in speaking your native language?

  Or:

  How often do you speak your native language in your house?

  In addition:

  How much time do you spend with people of your own ethnic community?

  How much exposure do you have to Indian culture on a weekly basis?

Appendix 2.C. Pilot Test Results

Results of analyses of selected measures of acculturation obtained from pilot interview data.
Comments on analyses of selected measures of acculturation obtained from pilot interview data
April 24, 2004

Telephone numbers were randomly sampled from a list of 83,619 California telephone directory phone numbers associated with Asian Indian surnames. This list was provided to California Survey Research Services (CSRS) by Survey Sampling, Inc. on March 31, 2004. For pilot interview purposes, 411 phone numbers were randomly selected from the 83,619 numbers obtained. All 411 phone numbers were called between April 2 and April 20, when the pilot interviews were halted. Fifty-one numbers were found to have been disconnected, presumably because the occupant had moved. Twelve numbers were connected to modems/faxes; four numbers were found to be business numbers rather than residential.

One hundred and one numbers were not resolved, because the pilot interviews were halted before the interviewers had reached the maximum of 11 call-backs. Of the rest, 51 potential interviews were discontinued because the household was said to include no one of Asian Indian ancestry. One additional interview was discontinued because the selected interviewee currently identified culturally with a South Asian country other than India. There were 101 initial refusals before any questions were answered; there were 34 additional refusals after the interview had progressed beyond the first question. One interview was terminated voluntarily by the interviewer for unspecified reasons but presumably because the interviewer made the judgment that the information obtainable from the interview would be of doubtful usefulness. Another interview did not take place because the selected respondent was physically/mentally incapable of answering questions.

Forty-seven respondents were apparently willing to participate in the interview, but 28 preferred a language other than English, so their interviews were postponed pending identification of appropriate bilingual interviewers. Of these 28, six preferred to speak in Hindi, four preferred to speak in Gujarati and nine preferred to speak in Punjabi. An additional nine preferred other languages that this project does not plan on using to conduct interviews with this population. The nineteen respondents who felt comfortable speaking English completed the interviews.

Characteristics of the N=19 respondents. One respondent turned out to have a history of smoking; the rest were never-smokers. Two thirds were female. One was born in the U.S. One could not remember the year he arrived in the U.S. The rest reported arriving in the U.S. as recently as 2002 and as long ago as 1982. About half had some experience with eating paan. Three reported having used India-specific tobacco products, including bidis, paan masala or gutka.

Selected measures of acculturation were analyzed to verify that there was substantial variation in the respondents' level of acculturation to U.S. culture despite the fact that the sample included only one respondent who was born in the U.S.

Variability of acculturation measures.
Inasmuch as all but one of the respondents was born in India, one might anticipate a lack of variability in the various measures of acculturation. On the other hand, nearly half (n=9) of the respondents had lived in the U.S. for over 10 years, during which time they might have become more acculturated.

Perhaps the single best overall assessment of acculturation included in the pilot interview instrument consisted of the choice of 5 options varying from *"I consider myself Indian. Even though I live and work in America, I still basically view myself as Indian" to "I consider myself as an American. Even though I have an Indian background and characteristics, I still view myself as an American."* The distribution of choices for this item was: 3 (#1), 3 (#2), 11 (#3), and 2 (#4), where the modal category (#3) was the option: " I consider myself as an Indian-American. I have both Indian and American characteristics, and I view myself as a blend of both."

Another important reflection of acculturation is the frequency with which a language other than English is used in the home. The distribution of responses to the question about language use in the home covered the full range. Two respondents reported

not knowing any Indian language (and therefore using English exclusively in the home), two respondents reported using an Indian language in the home "very rarely;" one respondent said "somewhat rarely," four respondents said "somewhat often" and ten said "very often."

Anthropologists and cross cultural psychologists have said that a sensitive marker of acceptance of another culture is a person's willingness to have a son or daughter marry someone from that other culture. We included two questions along these lines, one pertaining to daughters and one pertaining to sons. The responses to both questions were highly correlated (r = .81), as one might expect, and covered the full range of choices. One respondent was "strongly against" and another respondent was "moderately against" having their daughter marry somebody from a culture different from their own, two were "neither for nor against," five were "moderately open" to their daughter marrying outside of their culture, and ten were "very open."

Is this variation in acculturation meaningful? Does this variation in acculturation lead to testable hypotheses?

Some small sample hypothesis-testing

One question that can be answered in the affirmative is, "Will Californians of Asian Indian ancestry show evidence of change in self-described identification as a function of how long they have been in the U.S.?" A three-level ordered measure of duration in the U.S. was found to correlate positively to self-described identification with U.S. culture (r = .60, p = .006). Table 1 shows the mean level of identification with U.S. culture for the three levels of duration. Most respondents who had been in the U.S. less than ten years viewed themselves as "Indian-American, but deep down, as Indian first." By contrast, respondents who had been in the U.S. for more than 10 years viewed themselves as a blend of American
and Indian, with some tendency to see themselves as more American than Indian.

Table 1. Self Indentification with U.S. Culture

	Self indentification with U.S. culture		
Time spent living in the U.S.	**Mean**	**Std. Dev.**	**N**
Recent arrival <10 yrs	2.10	0.88	10
in U.S. 10-20 years	3.17	0.41	6
in U.S. long-time	3.33	0.58	3

Another question with a seemingly obvious likely answer is, "Will Californians of Asian Indian ancestry who have been in the U.S. a long time show less tendency to use an Indian language at home than recent arrivals?" The observed correlation between an ordinal, categorical measure of time spent living in the U.S. with a measure of Indian language use in the home was substantial (r = -.40, p = .09) but not statistically significant because of the small sample size. The longer respondents had lived in the U.S., the less likely it was that an Indian language was used frequently in the home.

A surprising potential finding was an unexpectedly positive relationship between history of Indian tobacco product use and time spent living in the U.S. (r = .41, p = .08). The recent arrivals were LESS likely to have used Indian tobacco products than those respondents who had lived many years in the U.S. Age may be a confounder in this observed potential relationship.

In summary

In summary, a first pass analysis of the data generated by the pilot interviews suggests that there is considerable variability in acculturation evident in this random sample of almost entirely first-generation immigrants. Examination of the relationships of selected acculturation measures with other measures suggests that these measures of acculturation covary meaningfully with other measures obtained from this sample. These results support the viability of evaluating the impact of acculturation on tobacco use in a sample comprised predominantly of first-generation Indian-Americans living in California.

Appendix 2.D. Issues with translation

A higher proportion of first generation Californians of Asian Indian ancestry learned English before they immigrated than has been true of Californians emigrating from Asian countries not found on the Indian subcontinent. Nonetheless, a review of the languages reported by the California Department of Education to be spoken by students needing remedial English instruction included a significant number of students who spoke Asian Indian languages (see: http://www.cde.ca.gov/resrc/factbook/numofesl.htm). The numbers of students needing remedial English instruction in California schools in 2001 included: less than 100 Bengalis, **1,142** Gujaratis, **4,415** Hindis, **8,280** Punjabis, less than 100 Tamil speakers, and **2,502** Urdu speakers. Some of these children were, of course, Bangladeshis, Pakistanis, or Sri Lankans, but given the predominance (93%) of Asian Indians in California among California South Asians, it is likely that most of these numbers represented the children of Asian Indian parents. It was therefore decided that the proposed tobacco survey would be appropriate to use with the majority of eligible respondents, but that translations would be needed to include the significant minority who did not feel comfortable conducting the interview in English. The California Asian Indian Tobacco Survey was therefore translated into Gujarati, Hindi, and Punjabi.

Translation of the California Asian Indian Tobacco Survey (CAITS) instrument into Hindi, Punjabi and Gujarati was completed by Translation City, a New Jersey-based translation company. Translation City was chosen on the basis of the quality of the work that they had previously performed for the South Asian Network (SAN), one of the research partners guiding this surveillance effort. They were chosen also because they had previous experience translating documents into a number of different Indian languages, not just Hindi.

Translation of the survey instrument was conducted over several months and occurred in two phases. The first phase included translation of items from the California Adult Tobacco Survey. The second phase included translation of items that queried acculturation, Indian specific tobacco products and religious practices and beliefs. All translations were then back-translated by other staff at Translation City. Discrepancies were addressed by an additional translator prior to submitting the final version to the study coordinator at UCLA, whose native language was Gujarati and who knew some Hindi as well.

After the survey instrument was translated into Hindi, Punjabi, and Gujarati, it was sent to bilingual/ trilingual individuals identified by SAN. These individuals compared the translated instrument to the English version to confirm the order of the questions as well as the skip patterns. They also corrected any remaining spelling and/or grammatical errors.

Once the questionnaires had been corrected and the necessary changes had been made, they were used in the training of the bilingual interviewers. To our surprise, the bilingual interviewers objected to the grandiloquence of the language used in the interview instrument. They felt that the Gujarati, Hindi or Punjabi language in the translated instrument was not sufficiently conversational, but was instead far too formal and esoteric for many of the native language respondents. One of the bilingual interviewers compared the translations to the English equivalent of formal, Shakespearean English and warned the research team that respondents with little formal education would not be able to understand some of the questions, even though they were ostensibly given in their native language. To address this issue, the bilingual interviewers recommended the replacement of certain native language words that were not commonly used by the speakers of those native Indian languages with more commonly used English words known by the bilingual interviewers to be used even by the native language speakers. These changes resulted in an interview that was primarily in Gujarati, Hindi or Punjabi but intermittently mixed with common English words. This mixture sounded, according to the bilingual interviewers, perfectly natural to native Indian language speakers because use of English in India is so prevalent, in part because English remains an official language of India and is taught as a second language in many schools throughout India.

Appendix 2.E. Community Participation

Community participation
Efforts to prepare the Asian Indian community in California took several forms:

1) visits in northern California with local community organizations that served the Asian Indian community in the San Francisco Bay Area,
2) contacts with newspapers that wrote stories about the study,
3) a sophisticated media campaign, and
4) a UCLA web site describing the study.

Our research partner, the Santa Clara County Public Health Department was responsible for the first two activities. Our other research partner, the South Asian Network, based in Artesia, California, was responsible for the media campaign. UCLA staff were responsible for the UCLA web site. More information about these activities is outlined below.

Santa Clara County Public Health Department

In June and July of 2003 with the assistance of Arnab Mukherjea, MPH- Project Intern (Santa Clara County).

As a summer intern at the Santa Clara County Public Health Department SCCPHD, Mr. Mukherjea conducted an outreach and education program to selected Asian Indian community organizations in the San Francisco Bay Area. The purpose was to educate the community groups about the upcoming study, solicit input from key gatekeepers to the community and cultivate future stakeholders. Most of these agencies were located in Santa Clara and Alameda counties. Agencies were identified from local community phone books and extensive web searches. Organizations fell into three catergories: business/professional, cultural, and religious.

Efforts were made to contact these organizations via phone, email, and letters sent to presidents/heads of these organizations. Individual meetings were scheduled with a few business/professional organizations. By August 2003 a community meeting was arranged inviting all groups to meet at one time.

After this final meeting, face-to-face outreach to the community was replaced by reliance on a sophisticated media campaign conducted principally by staff and contractors of the South Asian Network, with input by investigators associated with the other partner agencies.

An additional form of outreach was to contact various newspapers, to let them know about our study. Several expressed an interest and a couple wrote articles about the study.

Media campaign

A variety of communication channels were used to inform California's Asian Indian community about the telephone interview study. In addition to a brochure and CAITS Fact Sheet that were sent out with a prefatory letter to our sample, our research partner, the South Asian Network, drafted a media information campaign to advertise in Asian Indian weekly newspapers, California based weekly TV shows, in Asian Indian movie theaters and during Asian Indian radio programs. These media reach a high proportion of the Asian Indian community with news and information specific to their community. The principal messages conveyed by the campaign were the following: participation in the study was entirely voluntary, all answers to questions would be confidential and the study was designed to yield information that was intended to be used to benefit the Asian Indian community.

The media campaign, which started on May 7th, 2004 and ended on July 17th was conducted in English as well as in the three Asian Indian languages scheduled to be used in the interviews: Hindi, Gu jarati and Punjabi. Weekly advertisements in English, Hindi, Gujarati and Punjabi were placed in the following Asian Indian newspapers: India West, India Journal, India Post, and Punjabi Tribune. Advertisements were also placed in Showbiz India, a popular Asian Indian variety show, every Saturday from May 8th until July 17th in a northern and southern California broadcasts. Advertisements were also placed in Asian Indian movie theaters in English, Hindi and Gujarati in Naaz Cinemas in northern and southern California.

A website was also created to provide general information about the study. Content of the website included a brief description of the study, its objectives, selection criteria, confidentiality, and contact information. We were unable to determine the number of visits we received on the website.

A toll free number was also used to answer questions about the study as well as to remove households from our list who called in response to the prefatory letter to ask that they not be called. We received 50 calls from individuals who asked to have their telephone numbers removed from the sample frame, mainly because the caller said that she/he was not of Asian Indian origin.

Appendix 2.F. Recruitment and Training of Bilingual Interviewers

- **Recruitment**
- **Evaluation**
- **Training**
- **Bilingual Interviewer Assessment Form**

Recruitment

The recruitment of bilingual interviewers was a challenging task. An ideal bilingual interviewer could fluently read and speak both an Indian language as well as English. Initial attempts to recruit bilingual interviewers included posting flyers at local temples, gurdwaras, and Indian grocery stores, which yielded few inquiries. Posting the job announcement on the Internet on Craig's List (craiglist.com) resulted in more inquiries by applicants who were fluent in English as well as their native Indian tongue.

Evaluation

Applicants were first evaluated on their ability to demonstrate fluency in an Indian language. Language experts were identified and recruited by the South Asian Network (SAN) to assess the level of fluency of each applicant by phone as they read a passage written in Hindi, Gujarati or Punjabi that had been sent to them via mail or fax. These language experts used a Bilingual Interviewer Assessment Form (see below) to assess the applicant's pronunciation, tone, and pace when reading a sample translated script. The applicant's comprehension of the Gujarati, Hindi or Punjabi was also assessed by asking the applicant to respond to three questions in basic conversational language. The language expert was then asked, based on the interview, to determine if the applicant could read and speak the selected Indian language fluently enough to conduct a telephone interview in that language.

Upon receiving confirmation that the applicant had passed the bilingual telephone assessment, the applicant then had to successfully pass a rigorous interview by California Survey Research Services (CSRS), the CATI subcontractor for this study. The rigorous assessment of all would-be interviewers included an English proficiency test as well as a test to demonstrate an understanding of skip patterns on a sample survey instrument. If the applicant could show that he/she was able to display the necessary communication and telephone interviewing skills, they were hired as bilingual interviewers. Thirty-four applicants were considered. Only five were ultimately hired as bilingual interviewers. All five spoke Hindi; one also spoke Gujarati; one also spoke Punjabi.

Training

Both the bilingual interviewers as well as additional monolingual English-speaking interviewers at CSRS had to undergo three trainings. The general training included general interviewing methods, practicing of skip patterns, and entering of data on the CATI system. The second training, which was a project specific training, included a description of the goals of the study, a brief history of the Asian Indian immigrant experience, tobacco use among Asian Indians, and practice in how to pronounce the names of Indian languages, religions, and state and union territories. The bilingual interviewers also received training in how to code their data using the CATI system while following the CAITS script in a translated Asian Indian language. In addition, each interviewer had to complete the on-line UCLA human subjects certification training course in order to learn what rules to follow in order to safeguard the privacy interests of human subjects, before they were permitted to do any telephone interviews.

Bilingual Interviewer Assessment Form

Please use only one form for each language assessment.

1. Applicant's name: _____ _____
   Last First

2. Applicant's phone number: (_____) _____ - _____

3. Applicant's e-mail address: _____

3. Language that applicant can speak:Use one form for each language assessment. Please circle only **one**:

   Hindi Punjabi Gujarati

4. Request the applicant to read the oral consent script and determine the following:

   A. Pronunciation:

   ❒ Good ❒ Fair ❒ Poor

   B. Tone

   ❒ Good ❒ Fair ❒ Poor

   C. Pace

   ❒ Good ❒ Fair ❒ Poor

5. Comprehension
   Please ask the respondent to answer the questions in the language that is being tested:

1. Where were you born?
2. How long have you lived in the United States?
3. Please explain to me what your normal day is like.

A. Did the applicant demonstrate that he/she understood the question?

   ❒ Yes ❒ No

B. Did the applicant struggle to answer any of the questions?

   ❒ Yes ❒ No

6. Based on this interview, would you say that the applicant can read and speak this Indian language fluently?

   ❒ Yes ❒ No

Additional Comments:

_____

_____

_____

_____

_____

_____

Please contact Shanti Vachani at CSRS to let her know if this applicant has passed the screening.
Her number is: 818-780- 2777. Also, please mail or fax this form to Dipa Shah to:

Dipa Shah, M.P.H.
Division of Cancer Prevention Control and Research
650 Charles Young Drive South
A2-125 CHS; Box 956900
Los Angeles, CA 90095-6900

On behalf of UCLA and the California Asian Indian Tobacco Survey researchers, we would like to thank you for your services.
We appreciate your dedication to the Indian-American community.

Appendix 2.G.

Survey design methodology –
Sample selection
- Calculation of household response rate (adapted from the California Tobacco Survey, 2002
- Response rate for household contact
- Response rate for households in which candidate interviewees were successfully enumerated
- Response rate for enumerated and randomly selected individuals to complete the CAITS interview

Weighting
- Case weighting, to correct for nonresponse and noncoverage

Variance estimation
References

Sample selection

The rationale for using California telephone listings with Asian Indian surnames was addressed in Appendix 2.A. The sources of possible Asian Indian surnames were also discussed in Appendix 2.A. The surname list was included in Appendix 2.A and represented the Asian Indian names most likely to be encountered in the U.S. This list no doubt left out the less common Asian Indian names of recent immigrants that might have been identified as also living in California. Based on Lauderdale (2000) and our more extensive surname-generating list, we estimate that approximately 70-80% of first generation Asian Indians living in California could probably be identified through the use of published telephone listings associated with the surnames comprising our sample frame.

As indicated in Lauderdale and Kestenbaum (2000), Asian Indian surnames are generally quite distinctive, relative to other surnames found in the U.S. They are NOT distinctive, however, relative to the surnames of immigrants from countries adjacent to India, particularly Pakistan and Bangladesh, because Pakistan and Bangladesh were part of India until the partition of India at the time that the British ceded independence to India in 1947. Culturally and linguistically the Punjabis of Pakistan are very similar to the Punjabis in India; similarly, the Bengalis in Bangladesh are very similar to the Bengalis in India. The decision to exclude Bangladeshis and Pakistanis from the survey was made at the time of the publication of the Request for Proposals and could not be changed after the awarding of the contract. From U.S. census data it appeared that approximately 91.6% of the south Asian population resident in California in 2000 was from India, but the remaining 8.4% did significantly reduce the specificity of the obtained surname list, because Pakistanis and Bangladeshis share many of the surnames commonly found in India.

The resulting surname list was transmitted to Survey Sampling, Incorporated in Hartford, Connecticut for matching with surnames in published California telephone directories available as of spring, 2004. The resulting sample consisted of 83,619 listings. After a first draw from these listings, of 29,600, a review of the most frequent names indicated a few that were recognizably not Asian Indian, notably the surname "Chen," which is a popular Chinese surname in California. An additional 102 names were therefore removed from the list of candidate Asian Indian surnames, with the result that the candidate list of Asian Indian surnames was now reduced to 10,461 names and the resulting sample frame was reduced to 59,923 California listings. The UCLA Human Subjects Review Committee required as a condition of its approval of this study that the UCLA researchers not have direct access to the names and telephone numbers comprising the sample frame. This limited the ability of the UCLA researchers to evaluate how different the resulting sample of 3228 respondents were demographically from the demographics of the sample frame.

Random selection of eligible interviewee

During the screening phase, information was obtained about the number of Asian Indian adults over the age of 18 residing in the household. The "next birthday" rule was then used to select the interviewee from the enumerated eligible potential respondents. That is, the eligible person in the household whose birthday would be celebrated next was the person selected for interview. If the person responding to questions during the screening phase reported that her/his birthday was that very day, another member of the household was selected unless there was no other eligible respondent. The selection of respondent was done without replacement, that is, if the household member whose birthday was next refused to participate, the household was noted as being non-responsive and all additional efforts to secure an interview ceased.

Calculation of household response rates (adapted from the California Tobacco Survey, 2002 (Gilpin et al., 2002)

Response rates were calculated using the basic CASRO-recommended (Council of American Survey Research Organizations) method for telephone surveys. Using this framework, the typical household response rate is the ratio of the number of households that were successfully contacted among all eligible households in the sample.

The response rate for contacting targeted households was calculated as follows:

$$\text{household contact response rate} = \frac{\text{Number of completed household contacts + ineligibles}}{\text{Number of completed household contacts + ineligibles + non-responses}} \times 100$$

Response rate for household contact

When this study was first planned, the intent was to oversample second generation respondents in order to yield sufficient sample sizes to warrant statistically sensitive contrasts between first and second generation respondents. Results of a small pilot study (see Appendix 2.C) involving 411 listings as well as recent reports from the U.S. Department of Labor about large numbers of visas being granted to Asian Indians wanting to immigrate suggested that our initial estimates of the relative prevalence of second-plus generation Asian Indians might be too high. Nineteen of twenty respondents who completed interviews as part of the pilot study were born outside of the U.S., a proportion of first generation respondents that departed substantially from the no more than 60-65% we had initially hoped for. Moreover, the variability in measures of acculturation among the nineteen respondents who had been born outside of the U.S. was greater than expected, with the result that we became convinced that our planned tests of acculturation could be carried out irrespective of the proportion of respondents who reported being born in the U.S. In retrospect the variability in acculturation among non-U.S. born respondents should not have surprised us because a significant proportion of respondents were born and raised in such Anglophone countries as the U.K., Canada, Australia and New Zealand and were therefore much more exposed to the social norms and cultural practices common in the U.S. than we had initially supposed would be true of first generation Asian Indian immigrants.

If we had proceeded with plans to oversample second-plus generation Asian Indians, we would have had to screen out a large proportion of willing interviewees who were first generation. Discussions with the program managers at the Tobacco Control Section, California Department of Health Services led to the decision to forego the oversampling of second-plus generation respondents and to simply interview all qualified Asian Indian adults willing to complete the interview, regardless of generational status. The sampling was therefore a random sampling of the 59,923 Asian Indian-surnamed public telephone directory listings comprising the sample frame.

Each listing was called a maximum of 11 times before it was dropped for lack of resolution. We had initially planned on 14 times but the UCLA Human Subjects Committee felt that 14 was excessive. A screening interview was conducted with any adult (over 18 years) who answered the phone to determine household eligibility and to enumerate all eligible respondents in the household for sampling purposes.

Of these listings, 22,109 households could not be contacted. Table A.2.G.1 describes the reasons for why these households could not be contacted. This table also lists households that might potentially have been eligible but the interviewer never obtained enough information from the household to determine eligibility. We conservatively assumed that households that refused to participate even before hearing what the interview was about were potentially eligible for inclusion in the study unless we obtained specific information suggesting otherwise. Phones that were no longer working or that were dedicated to purposes other than for residential voice transmission were deemed ineligible on the assumption that the intended households had moved or habitually used another line for voice transmissions. If the former, then they were out of our sample; if the latter, then their voice transmission line was likely to be listed in our sample under a different number.

Table A.2.G.1. Number of Households that Could/Could Not be Contacted

Final Disposition of calls to contact household	Number of households technically ineligible	Number of households potentially eligible
Total telephone sample = 59,923		
Unresolved, unused sample = 5562		
Contact established with household = 10,773 refusals + 10,814 ineligibles + 3228 completes + 468 incompletes = 25,283		
Refused to participate (instant refusal, before study was described)		9329
Disconnected number	9472	
Modem	1687	
Hard of hearing	58	
Phone change to out of state	78	
12+ Attempts		8454
Totals	11295	17783

$$\text{household contact response rate} = \frac{\text{Number of completed household contacts + ineligibles}}{\text{Number of completed household contacts + ineligibles + non-responses}} \times 100$$

numerator = 25,283 total households contacted + 9472 disconnected numbers + 1687 modems + 58 hard of hearing + 78 phone number changed to an out of state
number = 36587

$$\text{Household contact response rate} = \frac{36587}{59923} = 0.67$$

Response rate for households in which candidate interviewees were successfully enumerated

For the 25,283 households that were contacted, that is, where a respondent answered at least one question, there were several additional questions that needed answering before all adult Asian Indians in the household could be enumerated. The interview progressed to the point of enumerating all eligible Asian Indian adults in the household for 4007 households. The reasons why the remaining 21,276 households did not reach this point are listed in Table A.2.G.2.

Table A.2.G.2. Number of Households Permitting Enumeration of Adult Asian Indians

Final Disposition of calls to households Total households successfully contacted = 25,283	Number of households ineligible	Number of households potentially eligible	Percent of total 100%
Refused by mail		483	
Refused by 800 number		81	
Not qualified by mail	390		
Not qualified by 800 number	58		
Other non interview by mail		91	
Other non interview by 800 number		18	
Other non interview by outgoing phone calls		205	
Language spoken other than English, Gujarati, Hindi, Punjabi	1054		
Spanish speaking	748		
Not a private residence	2687		
Identifies with other country culturally (e.g., Pakistan)	541		
No household member is Asian Indian	5335		
Number of households permitting enumeration		4008	
Refused to continue participation before enumeration		9584	
Totals	10,813	14,470	25,283

$$\text{household contact response rate} = \frac{\text{Number of households enumerated + ineligibles}}{\text{Number of households enumerated + ineligibles + non-responses}} \times 100$$

$$\text{Responsiveness of eligible households to enumeration} = \frac{4008}{25283} + 11354 = \frac{15362}{25283} = 0.61$$

Refusals attributable to repeat invitations to participate in the survey because of more than one residential number in the household were one possible reason for refusal. Unfortunately, there was no separate coding for such refusals. Respondents who did complete the survey were asked how many other residential phone lines were in their household. One hundred seventy-seven respondents, or 5.5% of the sample, reported having more than one residential phone in the household. Some fraction of the refusals, probably no more than 177/9584 = 1.8% of the refusals could be attributed to potential respondents having already participated in the survey.

Another possible reason for refusal in this population was distrust of how the information was to be used. The prefatory letter on UCLA stationery and the extensive media campaign were designed to allay concern about possible malevolent use of the survey information. They may not have been enough in this post 9/11 era to allay the anxieties of a population that has seen an increase in hate crimes and in suspiciousness by native born Americans against Asian Indians. The most publicized of these hate crimes was probably the murder of immigrant Balbir Singh Sodhi in Phoenix, Arizona. On September 15, 2001, Frank Silva Roque shot Balbir Singh Sodhi to death, as part of a multiple-incident shooting rampage that included shootings at a Lebanese-American clerk who escaped injury, at another gas station in Mesa, and at the home of an Afghan family. (Arizona Republic, 9/18).

Response rate for enumerated and randomly selected individuals to complete the CAITS interview

For the 4008 enumerated and randomly selected interviewees, 3228 interviews were successfully completed. Table A.2.G.3. lists the reasons stated by the survey subcontractor, California Survey Research Services, for why the remaining 979 interviews were truncated.

Table A.2.G.3. Number of Enumerated and Randomly Selected Interviewees Completing Their Interview

Final Disposition of calls to households	Number of ineligible interviewees	Number of eligible interviewees	Percent of total 100%
Completed interviews		3228	
Number of interviews terminated mid-interview		468	
Not Asian Indian	1		
Person chosen refused to participate after being selected		240	
Person chosen refused to consent after informed consent process		71	
Totals	1	4007	4008

$$\text{household contact response rate} = \frac{\text{Number of randomly selected individuals + ineligibles}}{\text{Number of randomly selected individuals + ineligibles + non-responses}} \times 100$$

$$\text{Response rate for randomly selected interviewee to complete survey} = \frac{3228}{4008} + 1 = \frac{3229}{4008} = .81$$

What do these response rates mean? Clearly, not every household we wanted to reach was reached. When we did contact a household, many households did not appear to include Asian Indians, either because they moved or because their surname was mistaken for being a surname limited to Asian Indians.

There was legitimate confusion by potential respondents as to whether they qualified as Asian Indian. One of our bilingual interviewers, for instance, was born and raised in what is today Pakistan, but was part of pre-independence India when he was growing up. He identified culturally with India and was, therefore, an appropriate person to include in this surveillance effort. Others, however, despite having been born in India, identified culturally and politically more with Pakistan. Such individuals were not eligible for inclusion in our telephone survey because of exclusionary criteria set in the Request for Proposals.

There would have been less respondent confusion and possibly improved response rates had all persons with family ties to the Indian subcontinent been included. There is less difference culturally and linguistically between Muslim Punjabis in Pakistan and Muslim Punjabis in India than between Muslim Punjabis in India and Muslim Bengalis in India, and yet RFP exclusionary criteria did not permit inclusion of any Pakistanis or Bangladeshis in our sample.

The interview was designed to be 30 minutes in length but averaged 27 minutes. For nearly 13% of the interviews that proceeded beyond the point of informed consent, the interviews were terminated early, primarily because the respondent could not / would not spend any more time answering questions. When interviews were halted midstream, the interviewers did try to schedule a time convenient to the respondent when the rest of the interview could be completed, but obviously many times that was not possible.

Fortunately, zip code information provided during the interview by respondents permitted us to compare the distribution of Asian Indians in the obtained sample with the distribution of Asian Indians as recorded during the U.S. census in 2000. Table A.1.C shows the sample distribution of Asian Indians by TCS region compared to the distribution of Asian Indians by 2000

U.S. census data. The distributions are similar, with some small over-representation by Santa Clara county (24% vs 20%) and a proportional under-representation by Los Angeles county (17% vs 20%).

Case weighting, to correct for nonresponse and noncoverage

To be able to generalize more confidently to all Asian Indians resident in California represent fairly the true prevalence estimates of Asian Indians resident in California in 2000. Ratio adjustment weights were used to make that part of the sample distribution comprised of respondents who lived in the U.S. in 2000 equivalent to the distribution of Asian Indians resident in California as captured by the 2000 U.S. census. This was done to correct for nonresponse (e.g., refusals) and for noncoverage (e.g., surname was not included among the listings comprising the sample frame). Ratio adjustment was stratified by gender and age grouping. Counties were grouped by TCS region to generate more stable weights. The mean case weights across the 12 regions ranged from 1.44 for respondents from Region 9 (Fresno, Imperial, Kern, Kings, Madera, Mariposa, Merced and Tulare counties) to 0.78 for respondents from Region 4 (Santa Clara county) (See Table A.2.G.4).

Table A.2.G.4. Mean Case Weights, by TCS Region

Region	TCS-defined regions	gen tcsweight =	1.00000	if qt >2000		
1	Los Angeles	replace tcsweight =	1.26701	if tcsregion = =	1	& qt<=2000
2	San Diego	replace tcsweight =	0.88580	if tcsregion = =	2	& qt<=2000
3	Orange	replace tcsweight =	1,05686	if tcsregion = =	3	& qt<=2000
4	Santa Clara	replace tcsweight =	0.78392	if tcsregion = =	4	& qt<=2000
5	San Bernardino	replace tcsweight =	1.29171	if tcsregion = =	5	& qt<=2000
6	Riverside	replace tcsweight =	1.16289	if tcsregion = =	6	& qt<=2000
7	Alameda	replace tcsweight =	0.85827	if tcsregion = =	7	& qt<=2000
8	Contra Costa, San Franscisco, San Mateo, Marin, Solano	replace tcsweight =	1.01543	if tcsregion = =	8	& qt<=2000
9	Fresno, Imperial, Kern, Kings, Madera, Mariposa, Merced, Tulare	replace tcsweight =	1.44088	if tcsregion = =	9	& qt<=2000
10	Alpine, Amador, Butte, Calaveras, Colusa, Del Norte, El Dorado, Glenn, Humboldt, Inyo, Lake, Lassen, Mendocino, Modoc, Mono, Napa, Nevada, Placer, Plumas, Shasta Sierra siskiyou, sutter, sonoma, Tehama, Trinity, Tuolumne, Yuba	replace tcsweight =	0.99836	if tcsregion = =	10	& qt<=2000
11		replace tcsweight =	1.18677	if tcsregion = =	11	& qt<=2000
12		replace tcsweight =	0.79562	if tcsregion = =	12	& qt<=2000

The STATA code for assigning case weights by gender and by age group is given below:

```
gen tcsweight =       1                                                                                  if qt>2000
replace tcsweight =   2.28678739   if tcsregion ==   1   &sex==   1   &age4==   18   & qt<=2000
replace tcsweight =   1.725127195  if tcsregion ==   2   &sex==   1   &age4==   18   & qt<=2000
replace tcsweight =   1.564303312  if tcsregion ==   3   &sex==   1   &age4==   18   & qt<=2000
replace tcsweight =   2.560537188  if tcsregion ==   4   &sex==   1   &age4==   18   & qt<=2000
replace tcsweight =   2.53100169   if tcsregion ==   5   &sex==   1   &age4==   18   & qt<=2000
replace tcsweight =   0.876061003  if tcsregion ==   6   &sex==   1   &age4==   18   & qt<=2000
replace tcsweight =   1.912136073  if tcsregion ==   7   &sex==   1   &age4==   18   & qt<=2000
replace tcsweight =   2.338925672  if tcsregion ==   8   &sex==   1   &age4==   18   & qt<=2000
replace tcsweight =   2.378084027  if tcsregion ==   9   &sex==   1   &age4==   18   & qt<=2000
replace tcsweight =   1.095433538  if tcsregion ==  10   &sex==   1   &age4==   18   & qt<=2000
replace tcsweight =   1.537275071  if tcsregion ==  11   &sex==   1   &age4==   18   & qt<=2000
replace tcsweight =   2.176861532  if tcsregion ==  12   &sex==   1   &age4==   18   & qt<=2000
replace tcsweight =   0.843458814  if tcsregion ==   1   &sex==   1   &age4==   30   & qt<=2000
replace tcsweight =   0.53020984   if tcsregion ==   2   &sex==   1   &age4==   30   & qt<=2000
replace tcsweight =   0.771621172  if tcsregion ==   3   &sex==   1   &age4==   30   & qt<=2000
replace tcsweight =   0.588690432  if tcsregion ==   4   &sex==   1   &age4==   30   & qt<=2000
replace tcsweight =   1.498593095  if tcsregion ==   5   &sex==   1   &age4==   30   & qt<=2000
replace tcsweight =   2.716074936  if tcsregion ==   6   &sex==   1   &age4==   30   & qt<=2000
replace tcsweight =   0.62721793   if tcsregion ==   7   &sex==   1   &age4==   30   & qt<=2000
replace tcsweight =   0.679662928  if tcsregion ==   8   &sex==   1   &age4==   30   & qt<=2000
replace tcsweight =   0.94978766   if tcsregion ==   9   &sex==   1   &age4==   30   & qt<=2000
replace tcsweight =   0.796315156  if tcsregion ==  10   &sex==   1   &age4==   30   & qt<=2000
replace tcsweight =   1.182391029  if tcsregion ==  11   &sex==   1   &age4==   30   & qt<=2000
replace tcsweight =   0.549661983  if tcsregion ==  12   &sex==   1   &age4==   30   & qt<=2000
replace tcsweight =   1.681547856  if tcsregion ==   1   &sex==   1   &age4==   40   & qt<=2000
replace tcsweight =   0.67026527   if tcsregion ==   2   &sex==   1   &age4==   40   & qt<=2000
replace tcsweight =   1.407615913  if tcsregion ==   3   &sex==   1   &age4==   40   & qt<=2000
replace tcsweight =   0.584738463  if tcsregion ==   4   &sex==   1   &age4==   40   & qt<=2000
replace tcsweight =   1.242158273  if tcsregion ==   5   &sex==   1   &age4==   40   & qt<=2000
replace tcsweight =   0.893687026  if tcsregion ==   6   &sex==   1   &age4==   40   & qt<=2000
replace tcsweight =   0.56734318   if tcsregion ==   7   &sex==   1   &age4==   40   & qt<=2000
replace tcsweight =   0.713176989  if tcsregion ==   8   &sex==   1   &age4==   40   & qt<=2000
replace tcsweight =   1.42783782   if tcsregion ==   9   &sex==   1   &age4==   40   & qt<=2000
replace tcsweight =   0.574671881  if tcsregion ==  10   &sex==   1   &age4==   40   & qt<=2000
replace tcsweight =   0.977186739  if tcsregion ==  11   &sex==   1   &age4==   40   & qt<=2000
replace tcsweight =   0.561650855  if tcsregion ==  12   &sex==   1   &age4==   40   & qt<=2000
replace tcsweight =   0.682492331  if tcsregion ==   1   &sex==   1   &age4==   50   & qt<=2000
replace tcsweight =   0.683127503  if tcsregion ==   2   &sex==   1   &age4==   50   & qt<=2000
replace tcsweight =   0.888129271  if tcsregion ==   3   &sex==   1   &age4==   50   & qt<=2000
replace tcsweight =   0.585877033  if tcsregion ==   4   &sex==   1   &age4==   50   & qt<=2000
replace tcsweight =   1.077926609  if tcsregion ==   5   &sex==   1   &age4==   50   & qt<=2000
replace tcsweight =   0.771555357  if tcsregion ==   6   &sex==   1   &age4==   50   & qt<=2000
replace tcsweight =   0.741223585  if tcsregion ==   7   &sex==   1   &age4==   50   & qt<=2000
replace tcsweight =   0.898411118  if tcsregion ==   8   &sex==   1   &age4==   50   & qt<=2000
replace tcsweight =   0.909905566  if tcsregion ==   9   &sex==   1   &age4==   50   & qt<=2000
replace tcsweight =   0.73344817   if tcsregion ==  10   &sex==   1   &age4==   50   & qt<=2000
replace tcsweight =   0.712504209  if tcsregion ==  11   &sex==   1   &age4==   50   & qt<=2000
replace tcsweight =   0.67180434   if tcsregion ==  12   &sex==   1   &age4==   50   & qt<=2000
replace tcsweight =   2.101125676  if tcsregion ==   1   &sex==   0   &age4==   18   & qt<=2000
```

```
replace tcsweight =  1.056132269  if tcsregion ==  2  &sex==  0  &age4==  18  & qt<=2000
replace tcsweight =  1.39009561   if tcsregion ==  3  &sex==  0  &age4==  18  & qt<=2000
replace tcsweight =  1.528473774  if tcsregion ==  4  &sex==  0  &age4==  18  & qt<=2000
replace tcsweight =  1.870740379  if tcsregion ==  5  &sex==  0  &age4==  18  & qt<=2000
replace tcsweight =  1.523102795  if tcsregion ==  6  &sex==  0  &age4==  18  & qt<=2000
replace tcsweight =  1.589200383  if tcsregion ==  7  &sex==  0  &age4==  18  & qt<=2000
replace tcsweight =  1.924852704  if tcsregion ==  8  &sex==  0  &age4==  18  & qt<=2000
replace tcsweight =  1.984535416  if tcsregion ==  9  &sex==  0  &age4==  18  & qt<=2000
replace tcsweight =  1.432789274  if tcsregion ==  10 &sex==  0  &age4==  18  & qt<=2000
replace tcsweight =  1.684166539  if tcsregion ==  11 &sex==  0  &age4==  18  & qt<=2000
replace tcsweight =  1.309089524  if tcsregion ==  12 &sex==  0  &age4==  18  & qt<=2000
replace tcsweight =  0.927290069  if tcsregion ==  1  &sex==  0  &age4==  30  & qt<=2000
replace tcsweight =  0.66026131   if tcsregion ==  2  &sex==  0  &age4==  30  & qt<=2000
replace tcsweight =  0.842520943  if tcsregion ==  3  &sex==  0  &age4==  30  & qt<=2000
replace tcsweight =  0.554249205  if tcsregion ==  4  &sex==  0  &age4==  30  & qt<=2000
replace tcsweight =  0.821436209  if tcsregion ==  5  &sex==  0  &age4==  30  & qt<=2000
replace tcsweight =  0.960380088  if tcsregion ==  6  &sex==  0  &age4==  30  & qt<=2000
replace tcsweight =  0.610866762  if tcsregion ==  7  &sex==  0  &age4==  30  & qt<=2000
replace tcsweight =  0.763280806  if tcsregion ==  8  &sex==  0  &age4==  30  & qt<=2000
replace tcsweight =  1.700673072  if tcsregion ==  9  &sex==  0  &age4==  30  & qt<=2000
replace tcsweight =  1.244937151  if tcsregion ==  10 &sex==  0  &age4==  30  & qt<=2000
replace tcsweight =  0.959379692  if tcsregion ==  11 &sex==  0  &age4==  30  & qt<=2000
replace tcsweight =  0.447677176  if tcsregion ==  12 &sex==  0  &age4==  30  & qt<=2000
replace tcsweight =  1.414343536  if tcsregion ==  1  &sex==  0  &age4==  40  & qt<=2000
replace tcsweight =  1.486588344  if tcsregion ==  2  &sex==  0  &age4==  40  & qt<=2000
replace tcsweight =  1.348769094  if tcsregion ==  3  &sex==  0  &age4==  40  & qt<=2000
replace tcsweight =  0.55984421   if tcsregion ==  4  &sex==  0  &age4==  40  & qt<=2000
replace tcsweight =  1.15712462   if tcsregion ==  5  &sex==  0  &age4==  40  & qt<=2000
replace tcsweight =  4.891936072  if tcsregion ==  6  &sex==  0  &age4==  40  & qt<=2000
replace tcsweight =  0.961919158  if tcsregion ==  7  &sex==  0  &age4==  40  & qt<=2000
replace tcsweight =  1.408204381  if tcsregion ==  8  &sex==  0  &age4==  40  & qt<=2000
replace tcsweight =  0.875679899  if tcsregion ==  9  &sex==  0  &age4==  40  & qt<=2000
replace tcsweight =  0.666417593  if tcsregion ==  10 &sex==  0  &age4==  40  & qt<=2000
replace tcsweight =  1.654821592  if tcsregion ==  11 &sex==  0  &age4==  40  & qt<=2000
replace tcsweight =  1.700673072  if tcsregion ==  12 &sex==  0  &age4==  40  & qt<=2000
replace tcsweight =  0.771036859  if tcsregion ==  1  &sex==  0  &age4==  50  & qt<=2000
replace tcsweight =  1.234774399  if tcsregion ==  2  &sex==  0  &age4==  50  & qt<=2000
replace tcsweight =  1.264136669  if tcsregion ==  3  &sex==  0  &age4==  50  & qt<=2000
replace tcsweight =  1.211532117  if tcsregion ==  4  &sex==  0  &age4==  50  & qt<=2000
replace tcsweight =  1.362205784  if tcsregion ==  5  &sex==  0  &age4==  50  & qt<=2000
replace tcsweight =  1.164460856  if tcsregion ==  6  &sex==  0  &age4==  50  & qt<=2000
replace tcsweight =  1.587470375  if tcsregion ==  7  &sex==  0  &age4==  50  & qt<=2000
replace tcsweight =  1.467723735  if tcsregion ==  8  &sex==  0  &age4==  50  & qt<=2000
replace tcsweight =  2.320918545  if tcsregion ==  9  &sex==  0  &age4==  50  & qt<=2000
replace tcsweight =  4.33838366   if tcsregion ==  10 &sex==  0  &age4==  50  & qt<=2000
replace tcsweight =  1.635313872  if tcsregion ==  11 &sex==  0  &age4==  50  & qt<=2000
replace tcsweight =  1.237156294  if tcsregion ==  12 &sex==  0  &age4==  50  & qt<=2000
```

Variance estimation

The weighting of prevalence estimates via poststratification to known census estimates requires recalculating the variance used to compute standard errors and 95% confidence intervals. Because neither stratification nor oversampling were used in the analyses, we chose to rely exclusively on the use of linearization. According to Levy and Lemeshow (1999), the technique of linearization to estimate unbiased variances for estimated characteristics of sample surveys was developed by Keyfitz (1957), Woodruff (1971) and others, and is based on a Taylor series approximation. Over time, researchers at the Research Triangle Institute developed dedicated software based on linearization, which eventually was commercialized as the SUDAAN statistical package. This software continued to evolve and is now well-reflected in the survey data-specific statistical software used for this report, known as STATA survey commands.

The availability and appeal of STATA survey data –specific software (and SUDAAN, SAS proc surveymeans, etc) has made linearization now the most widely used method of variance estimation for complex surveys. The technique of linearization is used to construct an approximation to the functional form of the estimated population characteristic that is a linear function of the original observations and hence is amenable to construction of a variance estimator. More details about how linearization leads to reasonably unbiased estimates of variances in complex survey designs are given in Levy & Lemeshow (1999), pages 366-370.

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